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THE MODERN HOSPITAL

A Monthly Journal Devoted to the Building, Equipment, Administration and Maintenance of Hospitals and Sanatoriums.

Vol. XXXVI *January, 1931* No. 1

The Hospital—An Agency That Is Supreme in Public Service

A Paper From the American Hospital Association Meeting

By ASA S. BACON

Superintendent, Presbyterian Hospital, Chicago

Hospitals constitute an endless road which twelve million patients travel yearly to health and happiness. To keep this road open, one billion dollars is spent annually in the care of the sick and in preparing trained workers to spread the gospel of good health.

DOWN through the ages history tells us of the efforts made by the human race in fighting disease and caring for the sick and injured. It has been said that good health is the foundation on which rest the power of government and the happiness of our people. Therefore the most important person in the community is the one who is ill.

In order to care properly for the health of the people, the hospital came into existence. It has gradually developed until it has become the greatest force in conserving life and in promoting research and medical education. Its value to public welfare cannot be estimated. It is setting a standard of public service that is recognized throughout the world. As Dr. Bert. W. Caldwell, executive secretary, American Hospital Association, has aptly said: "Hospitals are human laboratories and many if not all of the greatest lessons in medicine and surgery have been learned in them." The world would know little of the control of typhoid fever, diphtheria and scarlet fever, of the eradication of yellow fever and of many of the other achievements of modern medicine, if a profound study of those problems under competent supervision had not been offered by hospitals.

Our hospitals constitute an endless road which twelve million patients travel yearly to health and happiness. To keep this road open we spend one billion dollars annually, not only in the care of the sick, but in training doctors, nurses, technicians and health workers who form the nucleus of national, state and city health programs. Of this vast expenditure of money, half a billion dollars goes to an army of 600,000 employees. There is no industry in our land to-day that affords such steady employment to its workers as do our hospitals. Our doors are never closed. We care for the sick 365 days in the year,

day and night. We must always be prepared for a peak load. We must give continuous and uninterrupted service at all times. We cannot shut down our plant and discharge our workers because of a financial depression. We must carry on some way.

Business men recognize that the purchasing power of our hospitals is a big factor in the commercial world, since they use in one way or another almost every commodity that is manufactured. Even the insurance companies have at last recognized that hospitals are the safest risks, and the millions of dollars worth of insurance of various kinds carried is not overlooked in the business world.

Why do cities compete for the privilege of entertaining the American Hospital Association each year? Because association members leave with them about $100,000, and because the citizens of the community are stimulated into greater activity in conserving their health.

Hospitals are contributing liberally toward civilization's progress and happiness. Our citizens are no longer afraid of the hospital for they recognize that in the hospital they can be restored to health in the quickest time possible. In twenty-five years our hospitals have reduced the average stay of patients 50 per cent. For instance, if a person had his appendix removed twenty-five years ago he remained in the hospital twenty-one or twenty-two days. To-day he would be in the hospital only ten or twelve days. In other words, through the advancement of medical science, better nursing, better equipment and management, the average patient is returned to his life's duties ten or twelve days sooner than he was twenty-five years ago. If his salary is estimated at say $5 a day, it may readily be seen that this saving in time over that of twenty-five years ago will pay his hospital bill, provided he has a ward bed.

What the Hospital Has Accomplished

The decrease in suffering that has come about through improved technique, better service and fewer days in the hospital wards, together with the reduction of the institutional death rate by over 50 per cent, is a vital factor in breaking down the public's fear of hospitals. Millions of dollars are being saved annually on hospital construction and equipment because of this great reduction in the length of the patient's stay. "A conservative minimum of the number of lives saved annually through good hospital service is 1,200,000," a bulletin of the American Hospital Association points out. "Considering the value of human lives to be, as actuaries tell us, on an average $6,000 each, this would mean a direct saving to the nation of approximately $7,200,000,000." If we could estimate exactly the real saving to the nation that results from good hospital service in obviating chronic invalidism, in shortening periods of illness and in preventing disease, we might then have some idea of the huge national economy that our hospitals effect.

In our church hospitals the churches have a great missionary enterprise and they should recognize it more than they do. The church and the hospital may justly be associated in the work of caring for the sick. Without healthy bodies there can be no spiritual, educational or physical success or happiness. Practically every nationality on earth is included in the list of patients who pass through our hospital doors and they are quick to recognize the kind and sympathetic service that the Christian hospital renders. The hospital sends out to the foreign fields a large number of nurses and doctors it has trained to care for the sick and to serve in all branches of public welfare.

The Far-Reaching Influence of the A. H. A.

In times of war our hospitals are fortresses that protect the health of our people. During the World War the doors of our hospitals were always open to care for the sick and suffering regardless of whether they had money or not. Thousands of lives were saved during the influenza epidemic, in spite of the fact that we sent thousands of our trained personnel to serve our soldiers at the front. If we had not had an efficient system of training our personnel and if we had not been always ready to carry a peak load, many of our institutions would have been compelled to close their doors during those perilous days. The World War proved beyond question the efficiency, the stability and the real worth of our hospitals to public welfare.

Neither should the work the hospitals do in conjunction with the Red Cross, public health and all other relief agencies be lost sight of.

Thirty-five years ago the hospitals became a big factor in public welfare and those in immediate charge felt the need of getting together to exchange ideas, to discuss hospital economics, to inspect hospitals and to study better plans of hospital construction and operation. There were no magazines devoted to hospital problems and there was no contact of hospital leaders except as they visited together in their various sections.

In 1899 eight hospital administrators met at Cleveland and organized the Association of Hospital Superintendents, the name later being changed to the American Hospital Association. From that time forward the association grew rapidly. It held annual meetings from the first.

State and city organizations sprang up. The Catholic and Protestant associations were organized. The American College of Surgeons and the American Medical Association became actively interested in hospitals. Many other organizations interested in hospitals and in the health of the public sprang up. Through the American Hospital Association these groups have been brought together into one big family working harmoniously to bring good health within the reach of all.

The influence of the American Hospital Association is far-reaching. Hospitals in the United States, in Canada and in fact all over the world are benefited by its untiring efforts in helping hospitals to become more efficient in their work of relieving suffering. There is no method whereby we can measure the value of the work of our association to public welfare.

To serve public welfare more efficiently, our hospitals need something besides organizations and genius of management. If we are to carry out and perform the great function of public service we must have money. The only solution at present for reducing the hospital cost to our needy patients is through more endowment funds. Our hospitals have not been properly introduced to the public. We have been too reluctant to use publicity methods to attract the attention of public-spirited citizens. Without doubt the average man of large financial interests realizes that he is a steward of God and that all his earthly possessions are his for this life and not for the life hereafter. If our boards of directors will keep the great work of our hospitals constantly before the public we shall receive the support we are entitled to, and a greater contribution to public welfare will be the result.

Are We Too Anxious About Our Health?

That the vast health activities of our generation are more than likely to result in arousing in the minds of the people fear of impending chimerical disaster is the belief expressed by Dr. William Gerry Morgan, president, American Medical Association, in an address, "Some Facts About Some Fads," delivered to the International Conference and Exposition, American Bakers' Association, in Atlantic City, N. J.

Doctor Morgan quoted what he described as a timely note of warning set forth by Dr. Robert Hutchison, London, in an address presented at the British Medical Association meeting in Winnipeg, Canada: "Business about health increases fear, the great enemy of mankind, and impairs the serenity which is the basis both of health and happiness."

This fear, said Doctor Morgan, leads many unthinking persons into all sorts of unwholesome fads and practices which more or less seriously undermine their physical health and render unstable their mental and moral balance.

"We should guard our health as a priceless possession, but we should not be constantly anxious about it," he urged. "Much publicity is being given to the universal adoption of periodic health examinations. This practice has much to commend it, but it must be safeguarded from being made a fetish. Health consciousness is the slogan of the advocates of periodic health examinations. The danger in this practice lies in developing the ill health fear complex. Already this regrettable extreme is beginning to be seen in those of hypochondriacal tendencies.

"The universal application of periodic health examinations should be so safeguarded as not to arouse a fear complex in the public mind. If we do this, there is everything in the practice to commend it for widespread adoption."

"It is our sacred duty," Doctor Morgan concluded, "to think long and scrutinize carefully before we lend our moral and material support to the thousand and one agencies for physical and moral uplift."

The After Care of the Tuberculous, a Matter for Community Effort

That adequate aftercare of the tuberculous patient following his discharge from the sanatorium is one of the most pressing problems confronting the progressive community, is asserted by Beulah Weldon Burhoe in the *Survey*.

Miss Burhoe's article deals in particular with the sanatorium graduate who is not sick enough to remain in the sanatorium and not well enough to enter competitive industry. It is this person for whom the community must plan. He must be given employment that will not overtax his strength. He must have adequate medical and social supervision. The medical supervision is the responsibility of the medical profession and the health department. The social supervision will depend upon local conditions. It may take a number of forms, such as sheltered employment, reeducation, placement or colonization.

"Obviously, the route from the sanatorium back to employment will be reasonably free from hazards only when it becomes a matter of community conscience," the article concludes.

An Important Rôle Is Played by the Hospital Roentgenologist*

By KENNETH D. A. ALLEN, M.A., M.D.
Roentgenologist, Presbyterian Hospital, Denver, Colo.

THE x-ray department of a hospital consists of four sections—the diagnostic, the therapeutic, the technical and a section for files and records.

In the diagnostic section the roentgenologist confers with the various members of the staff upon the probable value of an x-ray examination in certain cases. When an examination is determined upon this section provides diagnostic evidence which is gained from radiographic plates produced by the technical section and from fluoroscopic signs.

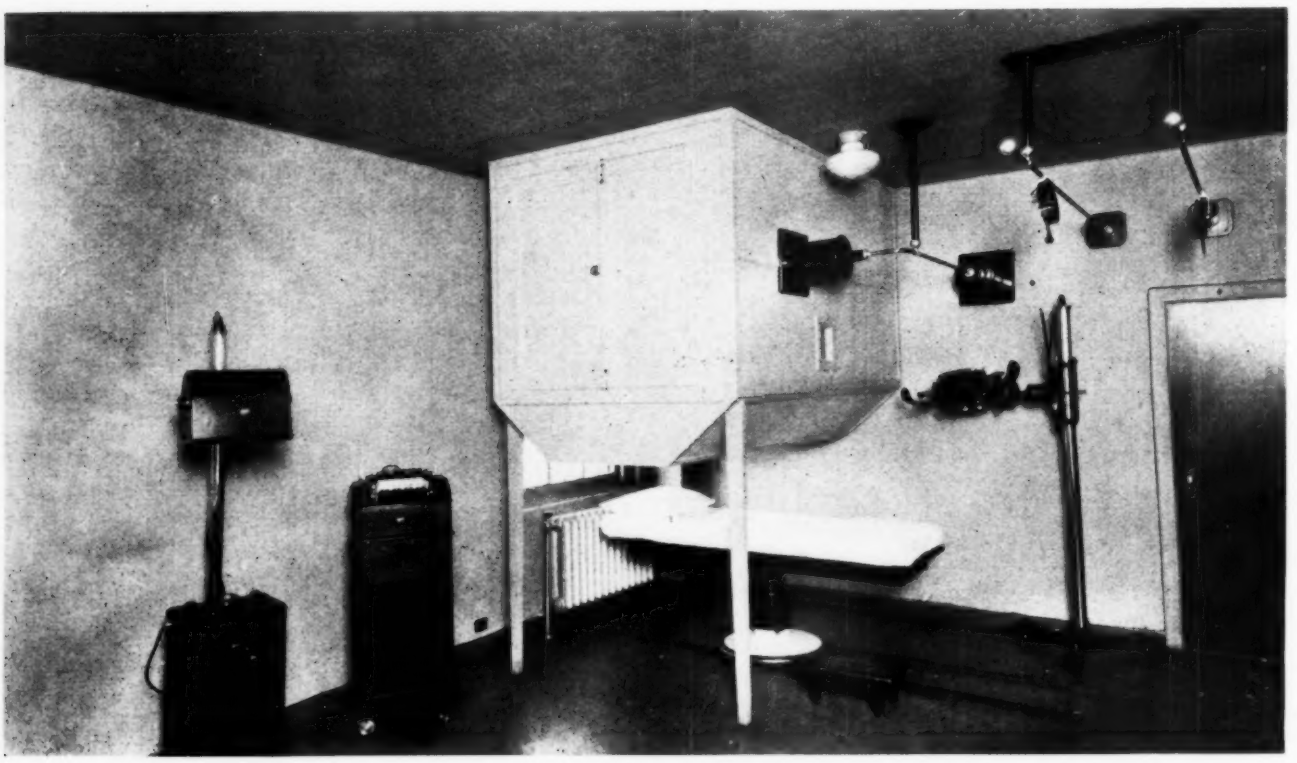
The therapeutic section offers consultation and advice in relation to the desirability of the use of the x-ray and radium for treating certain types of cases and gives the treatment in the cases in which it is deemed a helpful and necessary measure.

The technical section, presided over by the head technician working directly under the roentgenologist, produces all radiographs, makes lantern slides and radiographic reductions and manipulates the therapy machine by means of which the x-ray dosage prescribed by the roentgenologist is administered to the patient.

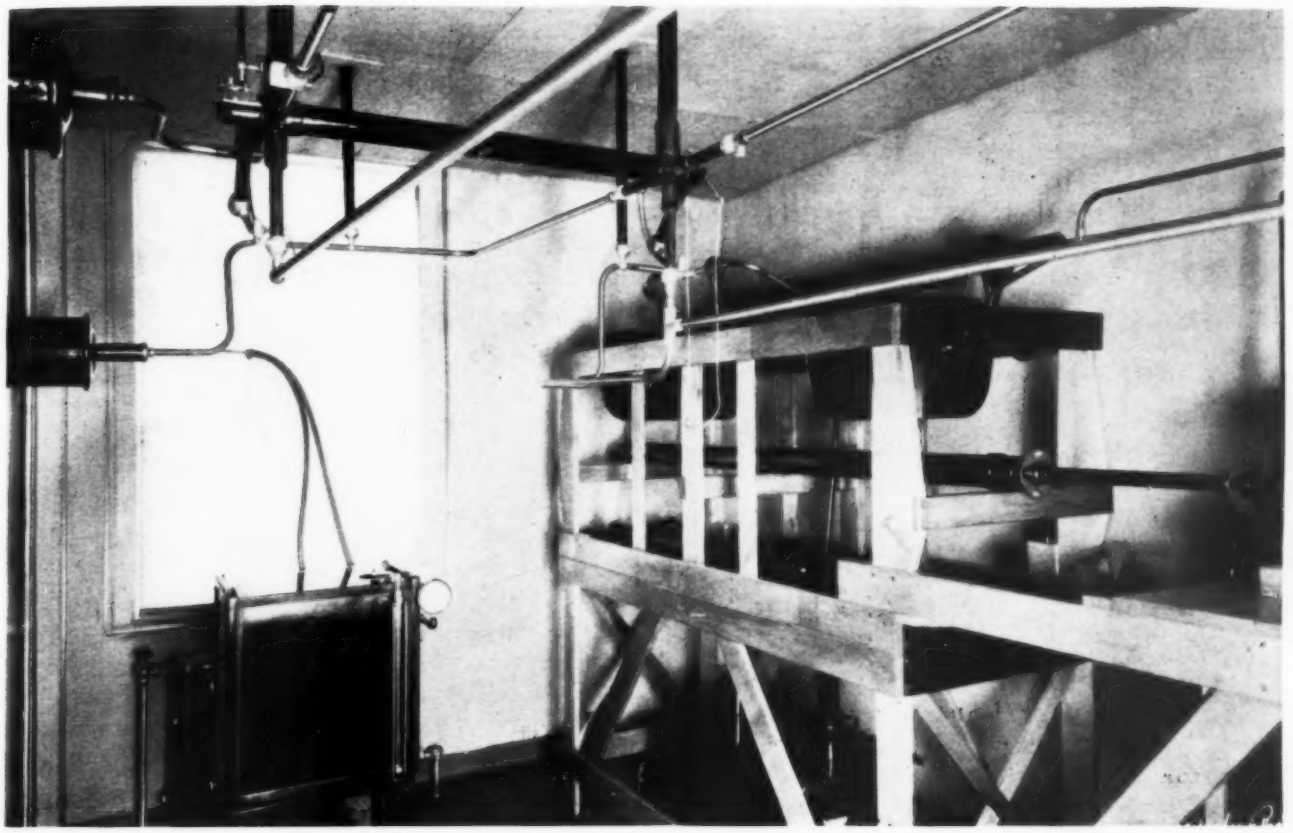
In this connection it should be understood that the technician can no more determine what x-ray treatment to give than the office secretary for an internist can determine what pharmaceutical prescription to write for his patients. The technician's duty in the treatment section is to handle the x-ray treatment machine according to the orders issued by the doctor for each particular case.

All requisitions for supplies originate in the technical section and a careful check is made on

* Read before the Colorado Hospital Association.



The well equipped deep and moderate x-ray therapy room of the Presbyterian Hospital, Denver



Necessary parts of the department's equipment are the transformer and water cooling unit of the therapy section.

statements rendered for supplies that are issued.

The files and records section of an x-ray department has a complex function. The head technician must be capable of administering this section because one of the records that must be kept meticulously is a record of factors of radiographic exposure for each plate and each patient so that radiographic quality can be maintained and patients safeguarded from too much exposure. The factors of x-ray treatments must be carefully recorded. A stenographer cannot be trusted to do this technical type of recording.

In addition to keeping the name and numerical file for patients the record section of the department should also maintain a complete disease card file for teaching and research purposes. This file must be entirely separate from the general hospital disease index. The roentgenologic nomenclature differs so widely from that of general hospital records that the two cannot be efficiently combined. Keeping this file up-to-date can be accomplished only by the combined and unceasing efforts of the roentgenologist and the technician.

Supplying reports promptly to the doctors and for the patients' charts is a daily duty of the files section. Filing radiographs so that they are always available and conform to the present fire regulations is a special and difficult duty of the files and records section.

The personnel list of every x-ray department must contain at least two especially trained workers, a highly trained roentgenologist and an x-ray technician.

A partially trained roentgenologist who might offer to do the technical radiography, administer the department, render therapy and interpret the films can quickly undermine the reputation of a hospital x-ray unit. Furthermore, he is asking the hospital to pay a physician for a large amount of work that could be better accomplished at less expense to the hospital by a trained technician working under a properly qualified roentgenologist. Therefore these two are indispensable—the roentgenologist for as much time as is necessary each day and a full-time technician who will endeavor to save the hospital as much of a roentgenologist's time as possible.

The small hospital in a small town can place its x-ray department in the hands of the nearest capable roentgenologist who will provide for the hospital a full-time technician trained under him and will make periodic visits to the hospital himself. Plates can be sent hundreds of miles by special delivery mail, and reports can be received by mail, telegraph and telephone almost as quickly as the x-ray reports reach the charts in the average hospital.

Whether pupil x-ray technicians and pupil

nurses should be on duty in the technical section depends on the local situation.

A hospital roentgenologist should possess not only great skill but should have other peculiar qualifications. He must be a physician, who in addition to his special training in roentgenology has sufficient enthusiasm and strength to pursue the necessary activities by which he can maintain an up-to-date working knowledge of medicine and surgery. He must attend medical and staff meetings untiringly in order to hear and to take part in the medical and surgical discussions, and he must be a diligent student.

Roentgenology of Aid to Staff

Interpretive roentgenology in the hospital is medical and surgical consultation in which the x-ray is used to gain evidence that can be added to evidence procured by staff members and by other departments of the hospital toward the end of an ultimate diagnosis. This type of consultation demands infinite tact and cooperation on the part of the roentgenologist in order that his department may function at its highest efficiency in cases that are managed by many physicians of different types and dispositions. At times for the sake of the hospital, the doctor in charge of the x-ray department without being obsequious must ignore and overlook situations that may try his pride, because he is always working with other physicians who are laboring under the stress and strain necessitated by the care of their sickest patients.

In giving x-ray and radium treatments, the roentgenologist not only is required to exercise his special skill but must always keep in mind the general medical phase of the case.

Another valuable qualification in a hospital roentgenologist is the ability clearly and expeditiously to present the x-ray phase of the numerous medical and surgical subjects that are brought up at the regular hospital staff meetings. Few cases are presented at these meetings that do not require some x-ray demonstration. The roentgenologist should know when to speak and how much to say and should be able to say it well.

The technician or technicians of an x-ray department as a rule should be trained by the roentgenologist himself, because the technician and her equipment must supply the physical evidence of disease for the roentgenologist's interpretation. In order to do this to the best advantage for any roentgenologist, the technician should use her equipment in the exact manner prescribed by him. This is best accomplished when the technician has been trained under him from the start.

The x-ray technique must be under the daily supervision of the roentgenologist and must be kept up-to-date by him. The roentgenologist must continually train and instruct his technician. Where the technical work is of the most difficult type with new situations arising daily, it is detrimental to an x-ray department for the hospital to employ a technician of no matter how many years' experience and to turn the technical work entirely over to her. The roentgenologist can best interpret those plates upon which the normal and abnormal conditions are visualized according to his own radiographic policy.

Many x-ray technicians undertake additional pathologic training. This is a mistake. No one person can do both kinds of work properly. Instead, a technician should study shorthand and typewriting in order to carry out the requirements of the files and records section of the x-ray department. Even a small x-ray department can keep one technician busy. She can do much to save the roentgenologist's time and thus save the hospital the expense of work done by a specialized physician.

Loyalty of the technicians to the roentgenologist and to the hospital is an important personal characteristic. The many intricate situations that arise require a high degree of this quality. A technician with a pleasing personality is a valuable asset to an x-ray department.

The functions or duties of the x-ray department as a whole may be divided into three types. First and most important, the department must cooperate with the staff in the diagnosis and treatment of patients. Second, it must conduct study and research along x-ray lines and cooperate in the research work of members of the staff and other departments of the hospital. Third, the department should maintain a teaching attitude toward technicians, interns and physicians desiring instruction in roentgenology.

Teaching Radiography

There is nothing more conducive to excellent radiography than to place pupil technicians under the regular technicians, all working under the supervision of the roentgenologist. To teach is to learn, and the head technician of an x-ray department will never be so valuable to that department as when she is instructing others in her art.

The average medical student who applies for an internship in a hospital probably has a poorer knowledge of roentgenology in relation to its importance in medicine and surgery than of any other specialty in medicine. The x-ray department of a hospital, then, has a distinct mission in supplementing this neglected portion of the young doctor's medical education. If the intern

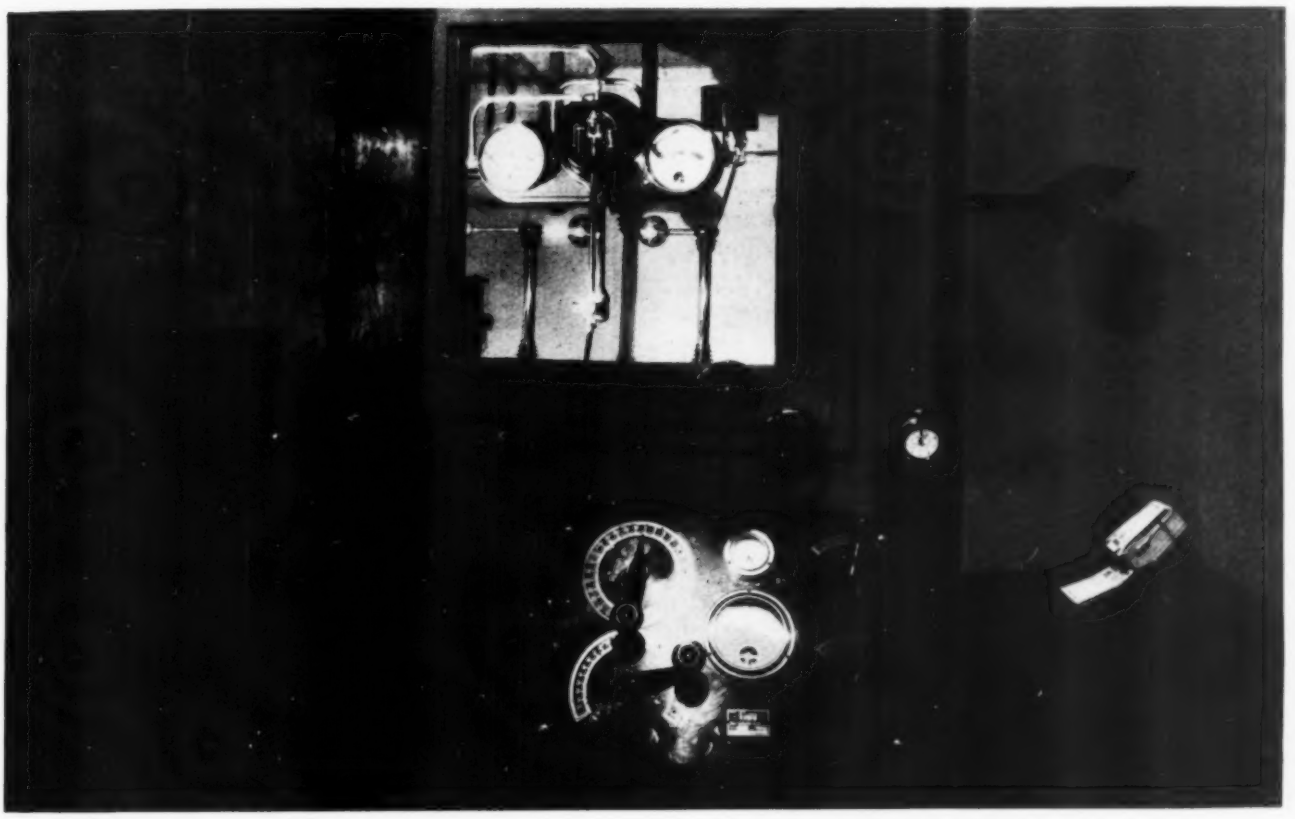
is encouraged to spend as much time as possible in the x-ray consultation room, he will not only learn when to call upon the x-ray and what to expect from an x-ray examination, but he will also have certain medical and surgical facts fixed in his mind more vividly than by any other method of instruction.

If teaching keeps the technicians alert, it will also sharpen the acumen of the roentgenologist. He will be more thorough. He will spend more time on his cases and his interest will be maintained at the highest pitch if he has postgraduate physicians to teach in the specialty of roentgenology.

The students of a properly conducted x-ray department will generate good will toward the hospital in which they have studied.

Only one individual can properly administer the internal organization of an x-ray department and that is the roentgenologist. In the chart of hospital organization the roentgenologist should be placed directly under the superintendent. It should not be necessary for the superintendent to be bothered by any detail of the management of this department, though, of course, he will be interested in all phases of x-ray work and will be in sympathy with progress. The maintenance of equipment, the requisitioning of supplies and material, the checking of bills for material and the employing and releasing of personnel should all be done by the roentgenologist who should ask the superintendent's advice in all matters.

The technical section produces the radiographs by which the roentgenologist forms his opinions of the cases referred to his department. It also furnishes the x-ray energy for the treatment of disease. In order to produce these items according to the requirements of the roentgenologist in charge, the details must be left to his supervision. If the entire responsibility and proper authority for the management of the x-ray department are delegated to the roentgenologist, then and only then can he be judged by the superintendent and hospital board according to the results obtained and the reputation gained by his department.



Roentgen apparatus used in the department is controlled from this central board in the control room.

It is common to hear hospital executives speak of profit or loss in relation to the x-ray department. They always mean that item on the bottom of the ledger which is obtained by subtracting the cost of personnel service, material and deterioration from the amount received from patients for x-ray examinations and treatment.

This item, however, is entirely unimportant when compared to another financial record directly brought about by the x-ray department, and that is the sum received from patients who have been hospitalized because the hospital could render them efficient x-ray diagnosis and treat-

ment. The x-ray department is an important division of the hospital. A large number of patients are admitted to the hospital only because x-ray work is desired.

If a hospital policy requires that a large profit be derived from the x-ray department, that profit can be made in only two ways, either by increasing the fees charged or by decreasing the pay for personnel service. If either of these measures is carried to an extreme, in fact if either is handled according to a policy that is only slightly incorrect, a toll will be extracted on the number of beds occupied because of the value of the x-ray department to that institution.

The fees charged for x-ray services in the hospital should be constant, determined not by the officers of any one hospital but regulated according to the customary average fee charged by the local hospitals and by the local roentgenologists. To undercharge roentgenologists in private practice will immediately cause a depressing influence on the quality of radiography in the particular region. It will also give an opportunity for criticism of the hospital, causing some physicians to send their patients elsewhere on the general principle that the hospital is undermining private practice.

Overcharging will discourage the number of x-ray examinations requested by staff members and will encourage physicians to send their patients elsewhere. This leaves only one variable influencing the income from the x-ray department, namely, payment for the services of the personnel and expenditures for supplies and equipment.

Good Roentgenology a Financial Asset

The most financially detrimental condition that can affect the income of the x-ray department is the inefficient management of its cases. Poor equipment, an uninterested technician or an ignorant roentgenologist will undermine the quality of work, will influence the number of beds occupied by patients requiring x-ray work and thus will have an adverse effect upon the finances of the hospital.

The best roentgenologist obtainable is the best financial asset to the hospital as far as the x-ray department is concerned. If this type of man is employed it is needless to say that those who work under him, if he is given a free hand in training and selecting them, will be of the best type.

Hospital roentgenologic work is becoming more and more emergency work. Fractures of all kinds are being treated as emergencies. More and more surgeons and internists are requiring x-ray examinations of the abdomen in the acute abdominal cases. The obstetric department is increasing the number of requests it makes upon the x-ray department for radiographs showing the size of the bony pelvis and the position of the fetus. Therefore, every roentgenologist is a full-time roentgenologist regardless of where he spends the time not required by the hospital.

Remuneration for the roentgenologist should be based on the amount of work necessitated by the x-ray department of any given hospital. This cannot be estimated by bed capacity or even by patient census. One roentgenologist and an x-ray department under his guidance will encourage much more work per hospital patient than will another.

How Massachusetts Is Aiding in Cancer Control

The death rate from cancer apparently has increased more than 50 per cent in Massachusetts during the last twenty years, the greatest increase of any state in the Union, it was stated by the commissioner of health, Dr. George H. Bigelow, in an address to the health division of the National Conference of Social Work.

"Whatever we do for cancer," stated Doctor Bigelow, "may well influence what we do for a far larger problem of the other degenerative diseases. Unstinted time and thought have been given to the various aspects of the problem by the outstanding citizens of the state.

"Each local cancer committee," continued Doctor Bigelow, "has an education subcommittee, a responsible group in each city facing the diversified cancer problem. The statewide cancer program has been launched. We have found an irresistible public demand for service in this field, and we are striving desperately to meet it."

New York Institution Soon to Own Largest Supply of Radium

When the 5,735 milligrams recently purchased by New York State are delivered and added to that already in use, the State Institute for the Study of Malignant Diseases, Buffalo, will own the largest single supply of radium in the world, says the *Social Welfare Bulletin.*

The purchase is made possible by an appropriation of $300,000 made by the legislature last year for the purpose of acquiring radium for the state. The state institute was created to make "investigations into the cause, nature, mortality rate, treatment, prevention and cure of cancer."

The Changing Relation Between Nursing and Medicine*

By HUGH CABOT, M.D.
Mayo Clinic, Rochester, Minn.

IT IS probably a safe assertion that the chief fascination in the business of living is change. On the whole this is fortunate since nothing, other than death and taxes, is more certain than that the world has changed, is changing and will inevitably continue to change. It follows, therefore, that we must be prepared to adjust ourselves to the change or else withdraw from the game.

It is unnecessary to point out that the changes of civilization that have taken place during the last half century, particularly during the last twenty years, have been very great and, judged by the standards of the past, very rapid. Not the least of these changes have been those that have taken place in the practice of medicine. Practice to-day is enormously and fundamentally different from that which existed at the beginning of the century. Fortunately for you, you have lived professionally in an atmosphere in which progress and change were congenial. The Mayo Clinic, with which you have been associated, would have been quite unthinkable except under modern conditions of change. In fact, it is probably accurate to suggest that the organization has been an important factor in many of the changes we now regard as fundamental to modern medicine. It was a unique achievement, far in advance of its time. Most changes and many men who are in advance of their time tend to shipwreck, while their ideas and ideals are revived later. Here, clearness of vision, singleness of purpose and a steady, practical idealism have avoided shipwreck and brought about an epoch making advancement of medicine.

Cooperation Is Essential

Not the least of these achievements has been the clear demonstration of the necessity of intimate cooperation between the various units and individuals who make up the great field which we may term health service. At an earlier day the training of the nurse was a simple business, largely because the practice of medicine was more an art than a science, and no profound knowledge of basic science was necessary because none existed which was clearly applicable to the promotion of health. It seems to me quite certain that the future of the development of health service depends upon an intimate and undoubtedly increasingly close association between the various elements of which this service is composed. Exact dividing lines between the various elements are not only difficult to draw but, I think, undesirable. Much that was properly thought of as the practice of medicine thirty years ago is now clearly the practice of nursing, and the same is true in many other allied fields, particularly, perhaps, the one we formerly thought of as the practice of dentistry.

Precise Boundaries Cannot Be Set

It has become clear that what we rather loosely refer to as public health work, which is in fact the attempt to prevent rather than to treat or cure disease, is becoming an increasingly important part of the duty of those engaged in the practice of medicine. One important element in public health is the teaching of the public, and this has lagged behind the ascertained facts upon which public health rests. Generally speaking, the information the public has in regard to the essential facts of health and disease has lagged behind our information and it is clear that we must devote attention to keeping the public advised as to the knowledge it should have in order to promote the health of the community. In this business of education, those trained in the practice of nursing must, whether they wish it or not, play an important part. Their relation to the public is as intimate, and in many respects more intimate than that of the physician. They are in a position to guide public opinion and must be prepared to accept this responsibility which is added to the load that all of those concerned with health service must bear.

From this brief statement you will see that the precise boundaries between the activities of the

*Address delivered to the graduating class of the Kahler School of Nursing, Rochester, Minn.

various units of health service cannot be set. Yet these boundaries have been set by law, and it thus follows that there is at least danger that the attempt to maintain the boundaries between these units will delay rather than promote progress. The law has defined the practice of medicine somewhat as follows:

"For the purposes of this chapter, the words 'practice of medicine,' shall mean to suggest, recommend, prescribe or direct, for the use of any person, any drug, medicine, appliances, appurtenances or other agency, whether material or not material, to the cure, relief or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture, or other bodily injury, or any deformity, after having received, or with the intent to receive therefor, either directly or indirectly, any bonus, gift or compensation."

Though this definition is not one that most of us can readily grasp and disentangle from the legal phraseology that tends to obscure its meaning, it cannot, I think, be doubtful that the fields of medicine and of nursing overlap and that technically at least there is a probability that nurses in carrying out their necessary and proper work, will be involved in the practice of medicine. It is my judgment that the fields of medicine and nursing cannot be separated and that it is not in the interests of health service that they should be. The work that is being done in both of these fields is of essential importance to the preservation of civilization. This work has the approval of the public and should not be handicapped by the failure of those working in these fields to agree as to their relation.

For the Benefit of the Public

The Medical Practice Acts, under which physicians are licensed to act as the servants of the public, were created for the benefit of the public and not for the benefit of the physician. The statutes regulating the registration of nurses were equally intended for the benefit of the public and not for the benefit of the nurses. These statutes tend to create legal monopolies, under which the physician and the nurse work not primarily for their own advantage but essentially for the benefit of the state. In other words, looked at broadly, all of those who are engaged in health service are not only by law but by tradition, custom and fact servants of the public. From this I think it follows that these groups should at all times so conduct themselves that they do in fact serve the public and do not tend to think of themselves as of the Lord or of the law anointed, and entitled to certain privileges denied to others. Privileges they have, but not for their own benefit. These privileges would not have been given and will not be perpetuated except as it becomes apparent that they are for the public good. It thus follows that these groups must see to it that their relations are so arranged that they do not disagree to the disadvantage of the public, or their spheres of usefulness will be seriously and possibly violently curtailed.

An intimate association with both the practice of medicine and the practice of nursing over a term of years has led me to the conclusion that any tendency to draw hard and fast lines between the activities of these groups will not meet with public approval, will not if they are carried far, be tolerated and that it is our clear duty to see that these overlapping fields work in the closest harmony and with the same ultimate ideals before them.

Wherein Nursing Education Is Superior

This brings me on to highly debatable ground and I should wish to be understood in the balance of what I have to say as expressing opinions that make no claim to wide acceptance and that stand the same chance of being wrong as do the opinions of others.

It appears to me that the security of the public in all fields of education is best obtained through the medium of educational institutions which are recognized by the state and in the fields of higher education authorized to grant degrees. The courses in nursing that have been developing rapidly during the last twenty years, have not, except in a few cases, led to the awarding of degrees. Now the present standard course in nursing, the so-called three-year course, might easily be held to be the equivalent of work now required for the degrees of bachelor of arts or bachelor of science. The fact that it has been compressed into three years has tended, I think, to blind educators to the fact that the amount of work done and the amount of time devoted to it are at least the equal of that required for the degrees mentioned. The nursing course is in many respects better planned. It is continuous, in that it has broken away from the old and outworn custom of long vacations which obtained originally purely for economic reasons. The earlier college students could properly devote the fall and winter terms to study but during the spring and summer were needed on the farms for the essential business of getting in the crops and keeping the community alive. This, I think, is the only satisfactory explanation of the wholly outworn custom of long vacations which have no educa-

tional justification and today no sound economic basis.

In the standard nursing course is now included a study of the underlying principles of the basic sciences upon which the practice of medicine necessarily rests. This course has had the wisdom to retain the principle of the apprentice system which is pedagogically sound in that it keeps facts and their relation in proper sequence. If you take as an example of professional education, medical education, it will be found open to grave criticism in its pedagogical basis in that far too often facts are removed in point of time from their application to such an extent that their retention becomes impossible. In the medical course another well established and widely accepted pedagogical theory is again neglected, namely, the essential quality of continuity of interest. Too often in this field and in most fields of professional education, facts are separated from their application, so that there is little or no evidence that facts have any application, and it is humanly impossible to retain interest in things that in and of themselves are related to nothing that the student can properly regard as interesting.

Now these serious deficiencies in many forms of professional education have been avoided in the development of nursing education. At the present time a good case could be made with the proposition that a well conducted three years' course in nursing is at least the educational equivalent of the time spent or misspent, as the case may be, in the acquisition of a bachelor's degree as the result of which neither the student nor the community can be shown with any certainty to be better off.

Why Not a Bachelor of Medicine?

Now it has never been the custom in this country to grant bachelor's degrees in medicine but this is practically the only country in the civilized world in which such degrees are not common. In general, the educational hierarchy has decreed that the bachelor's degree and sometimes the master's degree should precede the awarding of the doctor's degree. This has never been true in medicine, and in the not distant past, the doctor's degree in medicine has been awarded for an amount of educational work wholly unequal to that required for any other doctor's degree except that in dentistry. Medicine and dentistry at an early period undertook to award doctors' degrees on the basis of work wholly insufficient to entitle the holder to any such academic distinction. In recent times the courses in both these fields have developed in such a way that the doctors' degrees as now awarded are, I believe, the equivalent of doctors' degrees in any other field and may properly be judged to stand on a parity with the degree of doctor of philosophy which has long been in this country the great academic distinction.

I should like to point out further that as the doctor's degree in medicine has gradually developed to a point where it is worthy to rank with other doctors' degrees, a sort of educational vacuum has been created in its rear which might now properly be filled by the introduction of the bachelor's degree in medicine. I am quite aware that this will be a difficult achievement since American educational standards have not heretofore recognized any bachelor's degree in this field. It is, however, at least arguable that both in what will be generally admitted to be the practice of medicine and much more clearly in what is now generally thought of as the practice of nursing, a bachelor's degree would be desirable. In these cases where the degree of medicine is to be awarded for work in fields of nursing such awards should of course be made only on the recommendation of the faculty of the school of nursing in which the candidate has done her work.

A Short Course in Medicine

There are many who hold the opinion that the dearth of practitioners in rural districts is due to the length and expense of the course leading to a degree in medicine. That such an opinion is sound I am not sure but it would at least be a pretty educational experiment to establish a course in medicine leading to a bachelor's degree and entitle its holder to hold himself out as a practitioner of medicine and surgery insofar as the public is ready to trust persons with educational advantages more limited than those upon whom they have been accustomed to rely. I think it unlikely that any such experiment will be undertaken, although I should be glad to see it done. It seems to me eminently desirable, however, that the powers that control the awarding of degrees should face squarely the question of whether they should not award a bachelor's degree in medicine to those who have devoted three years to this work as is now required under the standard three-year course common in nurse training.

After all, the chief purpose of degrees awarded by any educational institution is to advise the public what degree of skill and knowledge may be expected from persons holding these academic distinctions. Under such a system it would be possible to create a hierarchy in educational attain-

ment varying from the bachelor's degree in medicine through the master's degree in medicine to the highest award, the doctor's degree in medicine. In this way the public would be able to distinguish sharply between those elements of health service that have had the greatest and those that have had a lesser amount of educational advantage. It would also enable the public to make its choice between those who had devoted three years in the field of nursing and those who had acquired practical skill in this field but without having received such fundamental training and consequently without having the same authority to hold themselves out as public servants in this field.

Without doubt we shall aid the public in avoiding confusion if we single out for academic distinctions those who have had the fixity of purpose and the devotion to put in varying amounts of time under competent authorities and have been stamped by these authorities with their approval. In this way, the educational bodies can lend their aid in establishing lines from which the public may draw its own conclusions as to the ability of those who hold themselves up as public servants.

The Negro Nurse in Public Health Work and Her Needs

That the most urgent needs of the Negro public health nursing group are better fundamental training for the Negro nurse herself and a willingness on the part of whites to accord professional standing to her, is the chief finding of a preliminary survey of public health nursing by and for Negroes conducted under the auspices of the Julius Rosenwald Fund. Data for the survey were gathered by Marjorie Stimson, assistant director, and Louise Tattershall, statistician, National Organization for Public Health Nursing. A compilation of these data by Stanley Rayfield is published in the current issue of the *Public Health Nurse.*

The survey includes the results of a questionnaire aimed to obtain a general picture of the number and distribution of Negro public health nurses in the United States and intensive study, through personal visits and interviews, in Chicago, New York City, Detroit, Cincinnati, Cleveland, Philadelphia, St. Louis, Columbus and Dayton. It enumerated 471 Negro public health nurses among a total of 4,986 nurses at work with the 157 agencies known to employ Negro nurses in this capacity. Departments of health employ 248 or slightly more than half of all the Negro nurses, boards of education employ 20, and 203 are employed by voluntary agencies, chiefly local nursing associations. In the Northern agencies, Negro nurses constitute about 7 per cent of the nursing staff. In the South, where Negroes comprise from 30 to 60 per cent of the population, Negro public health nurses were 20 per cent of the total of 919 nurses employed by the 92 agencies that were reported.

Negro Nurses Need Further Training

Of Negro nurses for whom there is available information, 77 per cent could meet the membership requirements of the National Organization for Public Health Nursing. Although Negro nurses were found to be doing excellent work, the majority from southern schools still need further training in medical and pediatric services. For this there is little opportunity. The 1928 list of accredited schools of nursing showed only one Negro training school which offered postgraduate training.

While health officials both North and South reported that more well trained Negro nurses could be used effectively in programs to improve the status of health among Negroes, there is at present an oversupply of poorly prepared Negro nurses, as of white nurses, to fill existing positions. The need is for women of a high type of personality, with a background of a well rounded home life and adequate preliminary and professional education, who could assume leadership and educate public opinion. It is not believed that the Negro public health nursing problem of the South could be solved by training Southern nurses in Northern schools, or by nurses who were born and trained in the North, since the lower salaries available in the Southern states, the difficulty of obtaining professional recognition for Negro nurses, and the less secure tenure of office do not attract Negro nurses accustomed to Northern conditions. Rather, Southern schools of nursing for Negroes should be improved, with more emphasis on the qualifications of students accepted for training, and with more adequate provision for training in pediatric and medical services.

What Salaries Are Paid

Salaries for Negro public health nurses ranged from $100 to $135 a month in representative Northern cities; from $75 to $90 in Southern cities. After a number of years of service, increases up to $20 a month could be expected. In 18 out of the 25 Northern cities Negro nurses are paid the same salary as white nurses; in 12 out of 18 Southern cities, they receive less.

How the Modern Laboratory Aids Medical Science*

By ELLIS KELLERT, M.D.
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As in all branches of human knowledge, tremendous progress in medicine has been made in the past few decades. Physiology, chemistry and pathology have introduced such precision that it is now customary to speak of the science of medicine. So what to the ancients was an art is now a concrete science. Our knowledge of the natural history of disease, the many instruments of precision in daily use and the diagnostic laboratories make this possible.

But the ancients are still with us. We meet too often the individual who boasts of his skilled special senses and decries the laboratory aids or, in other words, the science of medicine. He is entirely independent of serologic tests, of blood and urine examinations and of microscopic study of tissues. The hemoglobinometer cannot help him, he believes, and his finger tips alone are sufficiently accurate for blood pressure determinations. Prone to rely almost implicitly on his judgment he forgets the oft quoted remark of a high exponent of the art of medicine that "experience is fallacious and judgment difficult."

The Art of Medicine

What is this art of medicine concerning which so much is said? Is it the ability to differentiate, after years of experience and numerous errors, between typhoid fever and tuberculosis; between eczema and syphilis; between inflammation and tumor of the brain? Is it the ability to cure any disease? Or is it perhaps the kindliness of manner toward those in distress, the easing of pain and the eradication of the ailments that exist as phantoms of the mind? The eye may eventually be trained to see slight irregularities, the ear to detect faint murmurs and the fingers to feel a slight resistance, but these slight changes are deceptive as many a physician has learned at the necropsy table, to his great chagrin. What degree of art can equal in its precision an agglutination test, the complement fixation reaction, the cytologic study of the cerebrospinal fluid or the finding of tubercle bacilli in the urine or sputum? How much percussion is required to outline a neoplasm, an aneurysm or a cavity within the chest as clearly and precisely as a radiograph? What a multitude of clinical signs have been described, praised, confirmed and finally discarded after testing by instruments of precision or, in other words, after being investigated by the science of medicine.

Are Results of Tests Correctly Read?

It may be said that these tests occasionally mislead, that the microscope wrongly shows normal tissue when cancer exists. But even in mathematics, figures incorrectly added give an incorrect result. We must not hold our instruments and tests responsible when our intelligence fails properly to interpret the information yielded by them.

Billings[1], in a presidential address delivered before the Congress of American Physicians and Surgeons, stated that medical practice is an applied science and in the same paragraph further stated that medical practice will always be an art. His conception of the art is the experience of the physician, an experience that according to eminent practitioners is susceptible of a fifty per cent error. "Experience is fallacious" and how much more true this becomes the more experience one acquires.

Again Billings finds that "the evolution of medicine . . . resulted in the invention of instruments of precision and the elaboration of laboratory methods . . . in consequence of which diagnosis . . . has become more precise." That is true, as every intelligent physician knows, and the greater the "experience" the greater the inclination to seek instrumental aid. How much inspection and palpation are required to determine the degree and type of anemia present? Billings believes that the conditions of 80 to 85 per cent of the patients of an average community may be correctly diagnosed by "the sole applica-

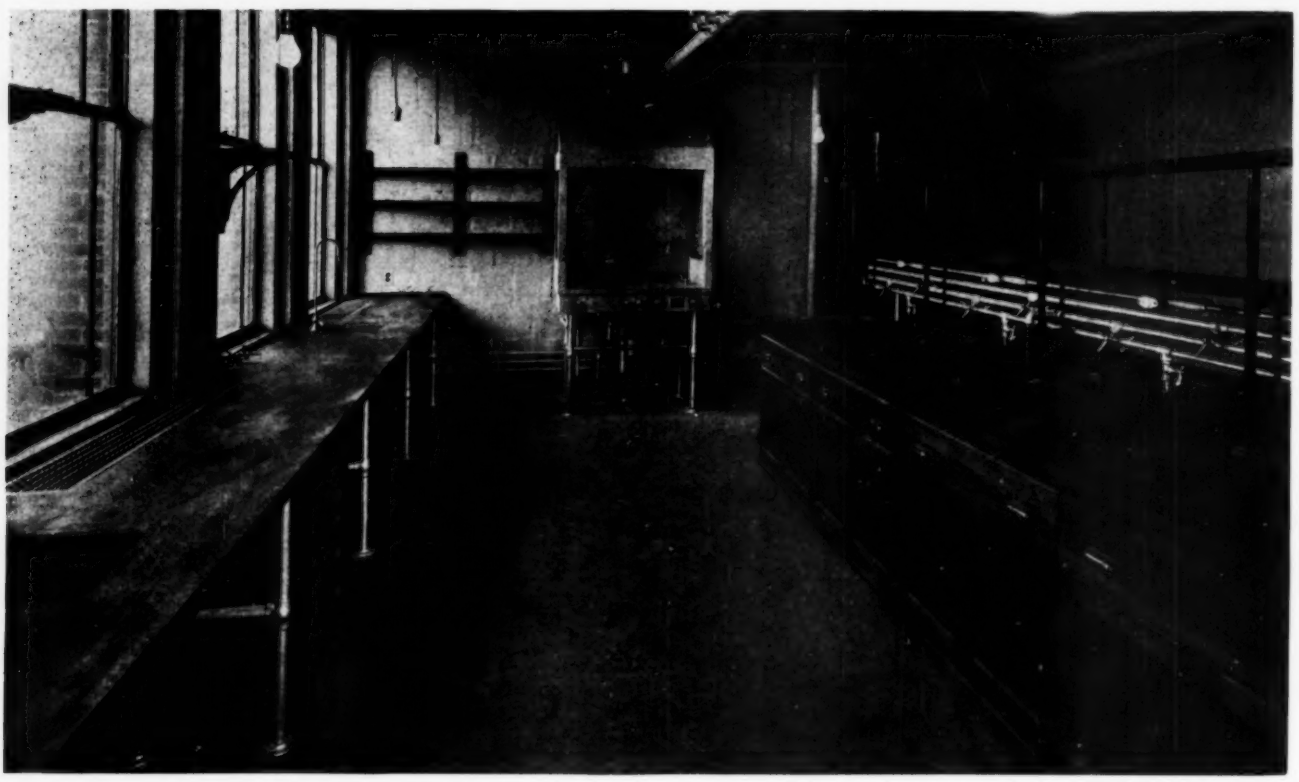
*Read before the Medical Society of the County of Schenectady, Schenectady, N. Y.

tion of the trained mind, the special senses, the hands and an always available simple laboratory equipment." That is also true, but the trained, logical mind is a rarity, the special senses in the average doctor are not fully developed and the simple laboratory equipment is available but rusty. What is simple equipment to one man is complicated to another; even the ordinary hemocytometer is a complicated instrument to most physicians. One is tempted to ask how it is possible to train all doctors so that they shall possess equally the highest diagnostic skill in the art of medicine. Are we to wait many years until the doctor acquires that skill? Is it not better to place in his hands at the beginning, instrumental, that is, laboratory, aids so that he may avoid the years of trial and practice before becoming competent in the art?

Sir James Mackenzie is often pointed out as the ideal clinician. He was, indeed, a remarkable and useful physician, and a benefactor of medical science. Mackenzie was a great partisan of the bedside examination and diagnosis and never failed to decry the laboratory. Nevertheless, much of his knowledge and skill was directly dependent on instruments of precision. In the field of cardiographic investigation he was a pioneer and to that branch of work he made permanent contributions. He entered a strong plea for early diagnosis and stated that "laboratory aids render little help in detecting disease at the early stage."[2]

That is not a carefully thought out statement, for the practitioner knows full well that the Widal test indicates typhoid fever much sooner than does the clinical chart; that the dark field examination and Wassermann reaction disclose syphilis more quickly and positively than do history and physical examination; that blood culture isolates septic microbes before visible abscesses or petechiae appear; that the various forms of anemia, leukemia and malaria can only be diagnosed early by laboratory examinations. Which will diagnose a small tumor accurately, palpation or a microscopic section? There is a long list of other conditions in which laboratory aids render great help in detecting disease at the early stage.

Mackenzie finds that "the laboratory worker obtains his results by a delicate mechanical contrivance. The physician has to train his senses and this can be done only by a long process of education, acquired by constant contact with the patient." That is true, and if a mechanism or test will indicate the diagnosis readily and at an early stage, should the patient be compelled to wait for that long process of "experience" or should only the old, old practitioners be permitted to diagnose disease? Is it possible to train doctors so that they shall all be equally clever in the art? Physicians are usually helpless in de-



Routine tests—those important adjuncts to the modern physician's diagnoses—are made in this up-to-date laboratory.

tecting the earliest stages of disease even with the employment of all aids. Mackenzie touches the heart of the diagnostic problem when he states "that the symptoms produced by each microbe should be recognized by the doctor who sees the patient." Unfortunately, different microbes induce the same kind of symptoms in the early stages. How similar are the prodromes of our most common diseases. Not even Æsculapius himself could differentiate them, and it must be remembered that many diseases become well advanced before subjective or objective symptoms appear. Trichinosis frequently is first detected in the laboratory.

Mackenzie, himself an inventor of instruments, believes that "the mischief which the random use of mechanical methods has done is incalculable," but S. A. Levine[3], speaking along similar lines, finds "a rapid advance in methods of diagnosis and prognosis of diseases of the myocardium and endocardium that resulted from the introduction of graphic methods". However, Mackenzie scolded bravely and well, but he finally admits that "the first appearance of disease in the human body is invariably insidious with little disturbance of the economy and no visible signs of its presence." Then must one turn to the laboratory, the scientific division of medicine. Incidentally, Mackenzie was responsible for the building of St. Andrews Institute with its fine chemical and bacteriologic laboratories.

Many will be quick to say that laboratories make mistakes. It is true that laboratory reports are frequently in error. No observer or instrument is infallible. Every laboratory develops a certain percentage of mistakes, and I believe that the best laboratories will fail in between 2 and 3 per cent of their reports. A study of such errors indicates that they may be divided into three groups: (1) those due to carelessness; (2) those due to ignorance, and (3) those due to the natural limitations of the methods employed. Even scientists and technicians may be mistaken in their calculations, and the human equation is as important a factor in laboratory work as in other fields. Laboratory mistakes are most frequently due to carelessness and failure properly to interpret the information revealed by the instruments or chemical tests. If, in the performance of a certain procedure, all the circumstances are kept identical, then in the repetition of that procedure the results will be identical. The laws of physics and chemistry are constant. Contradictory results should not be grounds for condemning the tests but rather for making investigation regarding the manipulators of the test.

It is not to the credit of a physician to use the

Research laboratories render great help to present day medical practice by detecting disease at an early stage.

laboratory excessively and aimlessly. Laboratory workers do not wish the clinician to request all the tests that he can think of or to ask for examinations merely to satisfy curiosity and to obtain negative information. In every case there are certain distinct indications for laboratory work and these should be adhered to. Routine laboratory examinations, particularly of the more complicated forms, impose a useless burden on the laboratory budget. Physicians addicted to the unnecessary use of laboratories enhance neither the art nor the science of medicine.

Deaver and Reimann[4] find that "as clinical observers we study the experiments which nature makes upon our fellow creatures. These experiments, however, in striking contrast to those of the laboratory lack exactness." Haggard[5], in an article concerned with medical education, claims that "the skill that is amassed by employing methods of precision over and over again becomes truly miraculous." Herrick[6] is somewhat more equivocal for he says "looking on instrumental and laboratory tests as mathematically precise, we feel that they do not lie though at times they do." The same author[7], three years later, wrote, "It must be admitted even by the most stubborn of old style practitioners that medicine is becoming more scientific and less empiric and that the phenomena of health, disease, physiology and pathology are more and more to be measured by formulas of physics and chemistry." To quote Klotz[8] of Cornell University, "People still like the magic of human sympathy and the mysticism of personality, but they want the art of medicine mixed with a little medical science." It is instructive to note that a medical student[9] in his intern year writes that "dogma begins the very minute the student emerges from the classroom of the fundamental sciences."

Old Time Practitioner Versus *Specialist*

Since the Middle Ages medicine has ever advanced, now slowly and again more rapidly. Doubtless the changes in practice have been for the better. Because of the great increase of knowledge, specialism of all types has been forced upon us. We all now feel that the properly qualified specialist is essential and yet numerous articles have been written bewailing the passing of the general practitioner and the country doctor who usually did the work of several varieties of specialists.

Can it be said truthfully that the public received better diagnosis and treatment from the general worker than from the specialized one? If so, then why have specialists so multiplied, for the public and medical profession are quite capable of evaluating their benefits? Because of a trend in his work or aptitude along certain lines, many a practitioner has drifted into specialism. Under such circumstances what distinguishes the specialist from the general practitioner? It is merely the ability to manipulate instruments of precision or to cleave more closely to the science of medicine and so make his diagnoses more exact. In an address on science and education, Professor Tait[10] of McGill University, Montreal, states, "It is the specialist who has the broad outlook, the deep insight into nature, who can give a reason for his open mind and who has knowledge and fact to support his point of view. This is an age of specialism, and specialists thrive on laboratories and instruments. Without these aids they are helpless and no more advanced than the general practitioner."

Scientific Methods Essential

It is an interesting fact that in all the laudatory comments on the family doctor and general practitioner the phrase in common use is "the physician of large practical experience." Such a doctor is the most valuable individual in any community. He has acquired an art and intuition that are of equal value with scientific methods. But can he transmit that art and intuition to the younger generation? Is the young doctor to labor thirty years to attain the same skill? If so, what of his patients in the formative years? He is not making shoes or painting pictures. He is dealing with health and life. If laboratories and instruments will quickly identify an obscure condition, should he not make use of them even to the point of compulsion? Without long experience or special study the physician does not develop profound ability and in the name of humanity must yield to the scientific method.

"To practice art without science constitutes charlatanism" is the opinion of J. D. Heard[11], who truly sums up the situation as follows: "No rigid distinction as between art and science can ever be drawn, for the scientist is constantly employing art in the carrying out of his investigations, whereas art tends to become self-conscious, to formulate rules of conduct and so to become scientific." Let us hope that theory and speculation will not take the place of fact.

A disease is of little concern to the patient unless symptoms are present. The advent of symptoms makes possible recognition of the condition but frequently too late for therapeutic purposes. Of first importance is the detection of disease in the incipient stages and this means that the true nature of a given disease must be recognized be-

fore the characteristic symptoms appear. In how many diseases is this possible, even by experienced physicians? Which is the more reliable, the uncertain rose spots or the blood culture and Widal test, the presence of itching or the blood sugar determinations, inspection of an ulcer or the Wassermann reaction, the smell in the patient's room or a throat culture? Is one justified in making a diagnosis of diabetic coma by the "smell" of the breath? I have yet to meet with these distinctive effluvia but perhaps patients now go to the doctor or hospital so early that the characteristic odor seldom develops.

In all the newer medical books dealing with clinical diagnosis, many chapters are devoted to a discussion of the manipulation of instruments and laboratory aids. Blumer, in his "Bedside Diagnosis," minimizes the laboratory aids and writes that there is a "tendency to overrate new methods of a technical nature," and yet he also states that "it would be ridiculous to pretend that laboratory methods are not of the greatest value in diagnosis in many instances." A short time ago such instances were few. Now they are many, and in the years to come they will be even more numerous. All experienced clinicians will agree with Blumer in his statement that "intelligent treatment is founded on accurate diagnosis." Treatment of all of the important diseases is best controlled by laboratory methods. I need but mention syphilis, tuberculosis, diabetes, anemia, leukemia and renal and heart disease to emphasize the point.

Combining Art and Science of Medicine

Are history and physical examination of prime importance or are they merely indicative of what to do next? A patient's psychologic and physiologic states are constantly changing. Granted that the physician is a skillful questioner, yet the patient may omit essential facts. He may have forgotten important data or because of some peculiar mental state he may even attempt to mislead the doctor. The physician is frequently exasperated by the little information he derives after prolonged questioning and he proceeds to employ the physical examination. Under this heading are usually included the laboratory findings, so that it would appear that the doctor has appropriated much of the science of medicine and labeled it art. His art of to-day includes the science of yesterday, and the art of the future will include the science of to-day.

We all acknowledge the eminence of Osler who was everything that a good physician should be. He combined the art and science marvelously well, employing each as the occasion demanded. Osler never decried the laboratory, and in fact his clinical judgment was invariably influenced by the results of such tests as were in use during his time. The laboratory was his recreation ground and the microscope his earlier hobby. Is it an exaggeration to say that much of his skill resulted from the laboratory studies? Osler was forever turning students and physicians to the laboratory, for he had confidence in tests and instruments of precision.

Development Has Been Slow

The art of medicine developed as a speculative exercise. How quaintly inaccurate were the early clinical observations and deductions. How difficult it was for the first physiologists to convince their practicing brethren that the arteries did not contain air. How slow physicians were to adopt the stethoscope and even now Harvey Cushing[12], speaking of the x-ray, complains that "it has taken nearly two decades for physicians to lay aside the stethoscope in favor of this more exact method of diagnosis which may well enough be regarded as a laboratory procedure." Only two decades ago there were thousands of physicians who did not believe the germ theory of disease. As in the days of Pasteur there are many who deny the value of the antiserums. The "stick" of Laënnec was ridiculed by profound physicians who with great confidence fixed their ears to the chests of patients. Hands were still placed on brows to determine fever long after the introduction of thermometers.

It may be said that medical practice does not consist alone in diagnosis and treatment, that many other intangible factors are involved. In some cases this is true, and if patients wish to pay the doctor for a pleasant social visit they are of course entitled to all the art and personality that the physician can convey to them. I am certain, however, that most physicians regard such visits as the burdensome phase of practice. The majority of patients are eager for scientific methods and demand as quickly as possible a correct diagnosis followed by the most modern and approved treatment. Even the scientific doctor can be a cultured gentleman of the highest type with that broad understanding and sympathy considered so desirable by those who practice the art, and yet I have seen many patients get well quickly under the care of bullying and irritating physicians who possessed the necessary skill in the science of medicine. I firmly believe that the sick are impatient of those who are all art and no science but they are too polite to protest to the doctor.

The laboratory worker submits his tests to the

clinician, for it is he who must decide their value and practicability. If the mass opinion of the profession is favorable then the test of appliance is incorporated into the laboratory routine and becomes a standard procedure. The laboratory worker never urges his methods to the exclusion of common sense. He merely offers them as aids, at times indispensable aids. The doctor does not discard a remedy because it will not cure all his patients, and he should not set aside a laboratory test because it is not 100 per cent accurate.

Physicians are not being asked to adopt laboratory tests in lieu of relying upon their judgment and experience. That, in the present state of laboratory work, would lead to as great harm as the total neglect of laboratory aids. I doubt whether any physician would now care to practice without the comfort and aid derived from the microscope and roentgen ray. Perfect tests have not yet been devised, perfect laboratory workers are yet to be developed. To use the laboratory and yet belittle it at the same time is an attitude unworthy of the followers of so noble an art. What is required is active cooperation, frank acknowledgment of error and study for the purpose of improvement. We all want for our physician the man who can inspire confidence and whose personality pleases, but we should also like him to feel certain of his premises and to have such confirmation of his opinion as may be derived from chemical tests, microscopes and cultures. Such uses of the laboratory will stimulate his art and the enhanced art will arouse further interest in the science. Such proper coordination of the two will eventually result in the attainment of the final goal in medical practice—a specific test for each disease, a specific cure for each disease.

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Compensation Legislation and What Three States Did About It

Medical and hospital aid in compensation cases was considered by various state legislatures last year, but only one law was passed, that in Virginia providing among other things that for a period not exceeding sixty days after an accident and for such time thereafter as the industrial commission shall require, the employer shall furnish the injured employee such necessary medical attention as the nature of the accident requires, and in addition such surgical and hospital services as may be deemed necessary by attending physicians or the industrial commission.

This law as well as those that failed to pass is abstracted in a survey by William C. Woodward and Thomas V. McDavitt, bureau of legal medicine and legislation, American Medical Association, and published in the association's monthly *Bulletin.*

Bills were killed in Kentucky that sought to extend to 120 days the time for which an employer should be liable for medical, surgical and hospital services for injured employees and to provide that the compensation board might, in its discretion, allow such services, in amount not to exceed $200 more than is now allowed by law. Two bills were killed in Massachusetts. One sought to extend in unusual cases the benefits of medical and hospital services for the lifetime of the injured employee. Another sought to allow an injured employee a reasonable sum for care and nursing, whether or not such services were rendered in a hospital or at home by members of his family.

A Popular Hospitalization Plan for Teachers

The schools of Dallas, Tex., have a group plan of hospitalization that is proving popular with the teachers in that city, says *School Executives Magazine.*

Most of the teachers are subscribers to the plan, the members numbering 1,056, with an average of from twelve to fifteen teachers monthly receiving hospitalization. In the course of three months. thirty-seven teachers have taken advantage of the privileges, the lowest of the bills being $14 and the highest $176.26. Various types of cases have been receiving treatment.

The Dallas hospitalization plan is worked on the same economic principle as fire insurance. It distributes the loss of the individual over the group, the most fortunate ones being those who never receive the direct benefits. The plan assures service in Baylor Hospital when it is needed, in a $5 private or two-bed room, operating room service, anesthetics and laboratory fees during a period of hospitalization not to exceed twenty-one hospital days, but it does not include doctors' fees or the service of a special nurse.

It is open to all teachers, administrators and clerical employees of the white schools.

Reducing the Expenses of the Patient of Limited Means

A Paper From the American Hospital Association Meeting

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THE problem of the hospital patient of moderate means has been under discussion for a number of years and the time seems ripe to take stock of proposals that have been made to hospitals and practices that have been inaugurated by them in the attempt to solve the problem.

Whatever hospital administration can do to diminish the cost of hospital care for the patient of moderate means should be done, but I do not believe that it is within the power of hospitals to reduce the cost of satisfactory service to a point where it will cease to be a heavy burden to professional and clerical workers, artisans, small shopkeepers and the great middle class generally, between whose incomes and ordinary expenditures there is a narrow margin. The efforts of hospitals to deal with the problem have only to be analyzed to disclose their limitations.

Suddenly and quite unexpectedly illness claims a victim who is neither rich nor poor. The physician recommends hospital care. Hospital and patient are prepared to accept each other, but upon what terms? Free admission to a charity ward is possible provided the patient is ready to plead poverty, but such a plea is not quite justified and is repugnant to the patient that we have in mind. On the other hand, the price of admission to a private room, with all that this implies in the way of hospital and professional charges, is prohibitive. Why not compromise and provide a grade of service midway between these two extremes? This is what hospital administration has been trying to do, and from more than a decade of lively discussion and widespread administrative effort certain possibilities have emerged. What are these possibilities? Do they strike at the root of the problem? Can they afford the desired relief?

Let us consider first a suggestion for which certain conscientious and well informed physicians are responsible—that the patient avoid unnecessary hospitalization. The sponsors of this proposal assert that many patients are sent to the hospital who might well be treated at home. Assuming this to be so, where does the hospital come in? Is it practicable for the hospital to question the judgment of a reputable practitioner who requests the admission of a private patient? How can the hospital know whether the circumstances of the patient, not his medical status alone but all of the relevant domestic and social conditions, are such as to make hospital care desirable? Obviously, if the cost of hospital care is to be reduced by eliminating such care altogether, it is the medical practitioner not the hospital administrator who must take the necessary preventive steps.

Is Simpler Hospital Planning the Solution?

A reduction in the cost of hospital construction is suggested, and a return to the simpler forms of hospital planning that characterized the hospitals of earlier days is not inconceivable. Without entering into technical details let us assume that by the use of simpler forms and cheaper materials the cost of hospital construction could be reduced as much as 20 per cent. What would be the result? Where hospitals to-day actually charge a patient interest on capital, the gain to the patient would be equivalent to the interest on a reduced capital outlay of perhaps $1,500 per bed. At 6 per cent, this would amount to $0.25 a day. If we add to this an incidental daily saving on plant maintenance liberally estimated at an additional $0.25 a day, the total saving to the patient would be $0.50 a day, or for a twelve-day period of hospital treatment, $6. To the thrifty patient this is not a negligible item, but it is a minor saving at best, which will not solve the problem of the patient who is suddenly called upon to meet out of current earnings hospital charges and medical fees that together amount to $200, $300, $400 or more. Nor

is the promise of relief through modified building construction enhanced when we consider that the prevailing form of hospital charge does not ordinarily include the item of interest on capital. The most effective way of reducing the cost of hospital construction, namely, the substitution of large and barely equipped open wards for private rooms equipped with every modern convenience, would not be acceptable to the patient with whose needs and interests we are here concerned, for on all sides we hear the same story—that these patients want private rooms at ward prices, a demand that if recognized at once closes the door against any effective relief by means of more economical hospital planning.

Reducing Nursing Costs

Demands for greater economy in hospital nursing have prompted a number of hospitals to organize systems of group nursing. As commonly used in the discussion of hospital reform, the term group nursing signifies the employment by several patients occupying adjoining rooms of a team of three graduate nurses working on an eight-hour schedule, who among them cover the twenty-four-hour period. When three patients share the service of three nurses in this manner, the cost of nursing to each patient equals the wages of one nurse plus the customary hospital charge for the nurse's meals. In some localities this involves a daily payment of $7.50, $6 for the nurse and $1.50 for the hospital, but in localities where graduate nurses are paid $7 per day and where the hospital demands $2 for the nurse's meals, the bill of each patient for group nursing service is $9 per day. If we omit for the moment any consideration of prolonged illnesses, which are financially ruinous to patients in modest circumstances, and consider only the average illness requiring twelve days of hospital care, the patient's nursing bill under the system suggested would be $90 in some localities and $108 in others, for the twelve-day period. Does this prospect offer any comfort to the patient who is seeking low priced hospital care?

It is true that $90 or $108 for one-third of the service of three eight-hour nurses is less expensive than $180 or $216 for the undivided attention of day and night nurses on twelve-hour duty, but a $100 nursing item, added to $200 or $300 for hospital charges and medical fees, presents a total that is appalling to the school teacher, the junior executive, the cashier, the salesman or the skilled artisan, who is struggling to maintain a family in decent comfort and who, if he has been able to save at all, does not relish seeing all that he has been able to scrape together in a year of stubborn thrift swept away by an unforeseen and catastrophic illness. Also, if group nursing on the basis proposed were generally adopted by patients of moderate means, it would increase rather than diminish the hospital bills of all those who at present dispense with special nurses and manage to get along with floor nursing service.

A more radical departure than the introduction of group nursing is the limitation by hospital decree of medical and surgical fees as applied to private room and semiprivate ward services. This system made its first appearance, I believe, in university hospitals where fees were collected and retained by the hospital or the medical school and where the annual salary of the attending physician or surgeon was assumed to be sufficient compensation for both professorial and clinical services. A considerable impetus was given to the fixed professional fee by the adoption by state commissions of fee schedules covering the ordinary run of workmen's compensation cases.

A hospital is scarcely justified in preparing a medical fee schedule without first coming to an agreement with its staff concerning (a) the economic status of patients who are entitled to the proposed protection, and (b) the items of the fee schedule itself. Such a system has value and justification only insofar as it is equitable to everybody concerned. It is of no benefit to patients who before the adoption of the protective schedule were not forced to pay professional fees beyond their means. I recently compared the fixed fee schedule adopted by a well known hospital for the benefit of its intermediate patients with the fees actually charged to patients in the semiprivate wards of another institution of about the same grade, where the relations between staff and patients are untrammeled. I found that the unprotected patients in the latter institution fare quite as well as the protected patients in the former, from which it may be inferred that the medical exploitation of patients of moderate means is not a universal practice. But there is another aspect to this question.

Who Uses the Semiprivate Service

A hospital that limits the professional fees in its semiprivate service recently exhibited its carefully compiled record of the social and financial status of the patients admitted to the benefits of this service, and the list was found to be made up in large part of patients of a type that in most hospitals are found occupying beds in public wards where they pay no medical fees rather than in expensive private rooms.

I am not of course suggesting that the transfer of this group from the public ward to the semiprivate or intermediate class is not a proper procedure. Indeed I think it entirely proper and

highly gratifying, since it tends to do justice to medical men who in the past have suffered from the fact that patients of moderate means have been forced to choose between expensive private rooms where unrestricted fees could have been billed (but not always collected) and public ward service where medical fees were prohibited. If such patients now enter a controlled intermediate service where they are protected against the highest scale of professional charges, we must not hastily infer that their financial problem has been solved. The fact is that under the system of protection that is offered them they may still be called upon to pay clinical fees ranging from $100 to $150, and it is the doctor and not the patient who benefits if the patient would, in the absence of the fixed fee plan, have entered a public ward and paid no medical fee at all.

Relief Measures Do Not Meet the Need

Patients whose family incomes do not exceed $3,000, the limit adopted by some hospitals, or even $4,000 or $5,000, the more generous limit of family income for "patients of moderate means" established by others, can scarcely be said to be relieved of the embarrassment of hospital charges when the system created for their special benefit requires payments for a twelve-day illness that include $60 to $96 for a hospital bed ($5 to $8 a day), $90 to $108 for participation in group nursing ($7.50 to $9 a day), $100 to $150 for doctors' fees and $30 to $50 for operating room service, laboratory tests and other minor "extras," and for a longer illness proportionately increased payments at least for hospital and nursing services which accumulate day by day.

I have attempted thus far to analyze the forms of relief for the patient of moderate means that are most frequently suggested as administrative measures, namely, the simplification of hospital construction, group nursing and the fixed medical fee schedule. The result of the analysis is not satisfying. Is there, then, any way of escape?

The endowment of hospital service for patients of moderate means has been proposed and in a few cases effected. It is a form of philanthropic service for which the donors are to be commended. To protect and uphold the independence, the self-respect and the industrial and social usefulness of a fine class of citizens, to prevent worthy families from incurring burdensome debts and perhaps from sinking permanently or even temporarily into dependency, is not this a praiseworthy act?

How are such gifts usually applied? In most cases they are applied to a reduction in the daily maintenance charge from a cost basis of $6, $7 or $8 per diem to a below cost figure, say $4.50, $5 or $6 per diem. Where endowment funds are applied in this way the semiprivate patient benefits (assuming that nursing and professional fees remain as before) to the extent of from $18 to $24 in the course of a twelve-day hospital illness, or from $30 to $40 if the period of hospital treatment is extended to twenty days. This scarcely solves the problem, even for the comparatively small number of patients who thus far have been benefited by these endowments, and it is disconcerting to face the fact that if in the entire country, with about 400,000 hospital beds available for the acutely sick, there are, say, 100,000 patients of moderate means constantly in need of hospital service, a contribution of even $2 a day for the relief of each of them would require an income of $200,000 daily or $73,000,000 a year, which, capitalized at 5 per cent, is equivalent to an endowment fund of $1,460,000,000.

Can the hospitals of the country reasonably expect to acquire such a sum of money for this purpose? I doubt it. And if the money were actually forthcoming, it would relieve scarcely one-third of the patients now occupying hospital beds to the extent of not more than 10 per cent and in most cases probably not more than 5, 6 or 7 per cent, of hospital charges that are rapidly tending to be standardized for patients of moderate means at from $20 to $30 per day for bed and laboratory charges, group (graduate) nursing service and clinical fees combined. I heartily endorse the efforts of hospitals to obtain contributory endowment for this type of service, but if the obtainment and application of as much as a billion and a half of capital would not accomplish the desired end, we must look elsewhere for relief.

How the Patient May Help Himself

For really effective relief the necessary steps must be taken, it seems to me, not by the hospital but by the patient himself, or rather by the patients themselves, for what an individual patient cannot accomplish may be within the means of a large group who are willing to make common cause for the good of all. It would be splendid if every individual or every family could set aside each year enough to meet hospital costs as and when needed, but the irregularity of the demand and the large sums required make this impracticable. For a whole community the incidence of disease can be calculated with a fair degree of accuracy. For an individual or a single family it cannot. The hospital patient of moderate means does not find it particularly easy to pay his rent or his life insurance. Nevertheless he makes both of these payments regularly. He knows in advance what the items will be and incorporates them in his

budget. But hospital expenses! Who knows what will happen in any given year? There may be a single brief illness necessitating hospital care, or two such illnesses, or one particularly complicated illness of long duration or no illness at all. Meanwhile needs that are intimately bound up with the established mode of living recur with clocklike regularity, and these recurring needs which tend to increase in number as the standard of living rises, are provided for almost automatically.

Hospitals generally but not always demand cash payments. The deferred payment plan, which permits a patient to make a series of payments extending over a number of months, affords some relief, for it enables a patient, starting at the time of an unforeseen illness, to modify his budget for the period agreed upon. Occasionally a patient who could not pay a hospital bill at once can do so in easy installments, but the deferred payment plan has decided limitations and drawbacks. To begin with it calls for a sudden change in the distribution of income, which is really an altered mode of living, and the budgetary adjustment is entirely upset if a second illness happens to occur before the discharge of indebtedness incurred in consequence of the first. At best the patient is obliged to meet the whole cost of his illness out of his own income, without outside assistance, and it is the total amount of the required payments even more than the manner in which the payments are made that concerns the patient.

Inaugurate a system of insurance or mutual aid, and the whole picture changes. Insurance against sickness and especially against hospital costs would introduce into the budget of the family of moderate means an item that could be borne without great hardship. It is amazing that so little has been done in this direction in a country where voluntary life insurance is almost universally practiced and where accident insurance has been popularly accepted for years.

The Advantages of Health Insurance

Probably sickness insurance would long ago have claimed the attention of American state legislatures if free hospital care were not so generally available. The free hospital ward, however, does not satisfy the American patient of moderate means. He resents the implication of charity and looks upon the acceptance of such relief as a social degradation. And if, following German, English and other precedents, a system of compulsory sickness insurance were adopted, it would presumably exclude the patient of moderate means and would be restricted to working class groups in the lowest income divisions. Voluntary health insurance unhampered by state regulation is a horse of another color, and probably the average patient of moderate means could be made without much difficulty to see its advantages and even its necessity if it were once made clear to him that no amount of tinkering with the details of hospital administration can materially lessen the cost of acceptable hospital care.

Defining the Patient's Needs

Although I have thought it necessary to emphasize the disappointing limitations of familiar measures designed to ease the lot of the patient of moderate means, I have had no intention of discouraging such measures. On the contrary, I believe that there are sound reasons for supporting them energetically. Improvements in hospital economy and efficiency certainly need no defense. Whether such improvements are accompanied or not by exaggerated hopes, any progress in this direction is so much gained. As far as special endowments are concerned, any hospital that is fortunate enough to obtain such an endowment is immediately placed in the fortunate position of being able to assist, to the extent of the available income, a most deserving class of patients. Of particular importance is the fact that a hospital that obtains an endowment fund of this sort is likely to turn its attention at once to the earnest study of appropriate standards of treatment and suitable methods of organization. In order to apply the fund intelligently it sets out to classify the patient of moderate means, to define his social status, to ascertain the amount of his income, the extent of his ordinary expenditures, his financial relations with the medical profession, his attitude toward ward and private room care, his willingness to accept aid directly or indirectly, and his conceptions of personal and social dignity. The study of these questions tends to establish definite and suitable standards of nursing and medical care and thus to create a situation with which insurance actuaries can deal understandingly. At the present time, the needs of patients of moderate means are variously defined as ranging all the way from the highest grade of private room service to service differing only slightly from that of the ordinary public ward, and the resulting picture is far too hazy to afford a basis for actuarial calculations.

The first step toward the solution of a problem is the recognition of its existence. Both the general public and hospital administrators are now fully aware of the seriousness of the problem of the patient of moderate means, and the formulation of an adequate relief program will not be long delayed unless hospitals make the great mistake of continuing the attempt to solve the problem by measures of hospital administration alone.

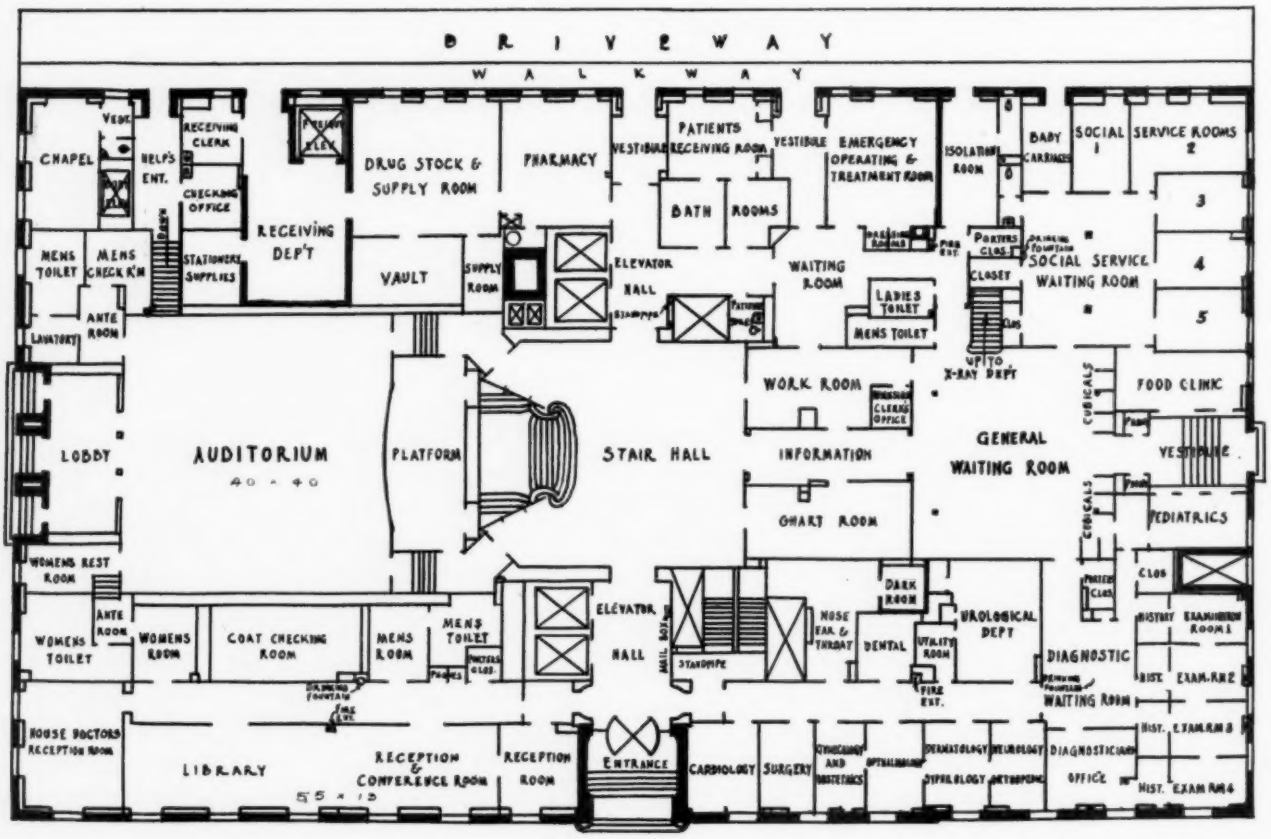
Where Each Patient Has a Room to Himself at Modest Cost

By LOUIS J. FRANK
Executive Director, Beth Israel Hospital, New York City

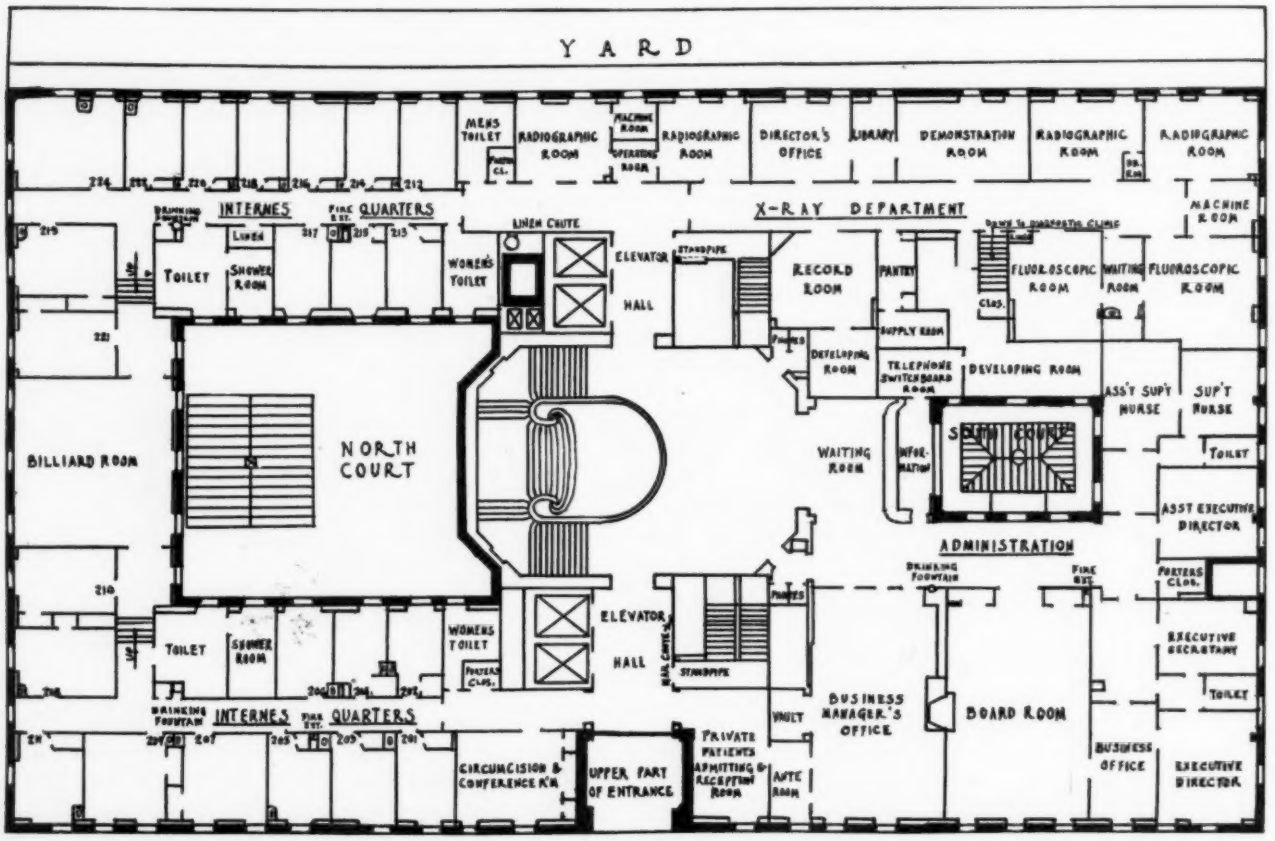
NOW that the Beth Israel Hospital has passed the first year of occupancy of its new building, it becomes appropriate to publish not only a description of this modern scientific structure for the treatment of the sick poor of New York City, but to discuss the way in which many of the innovations and experimental systems are functioning.

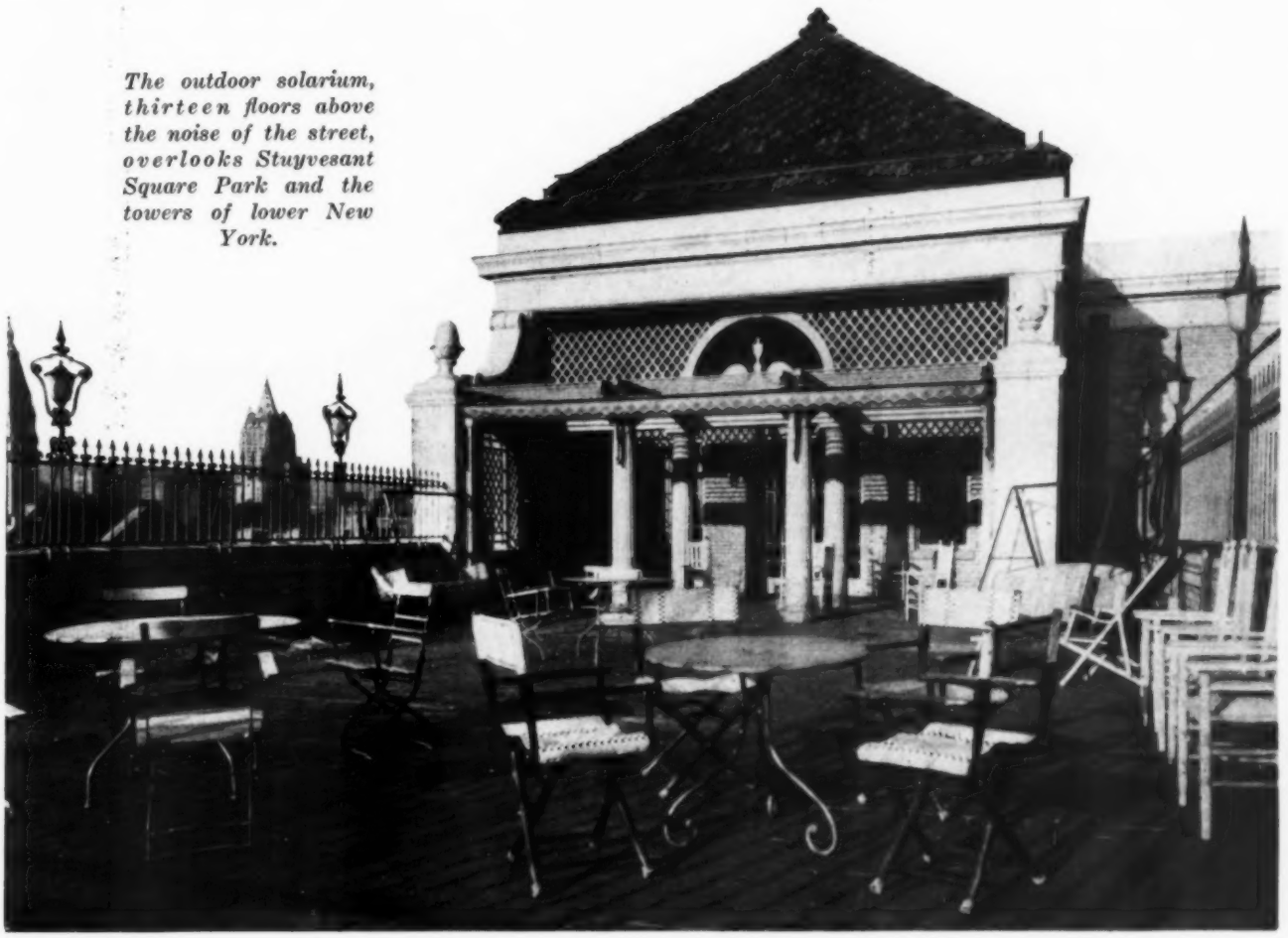
When the hospital was being planned and during the course of its construction, there was considerable speculation concerning the practicability of the numerous departures from hospital convention sponsored by the board of trustees of the institution. Many persons were skeptical as to the feasibility of a modernly equipped hospital featuring an individual room idea. It was felt that the arrangement calling for separate rooms would necessitate greater expense and an increase in the nursing personnel. While it was conceded that a hospital that can furnish medical attention in individual rooms at a minimum cost would be an effective method of attempting a solution of the problem of medical care for the great middle class, there were few to support the idea without reser-

The younger patients spend many happy hours in the gayly decorated playroom on the third floor.



The main floor, a plan of which is shown above, contains the record department, which is easily accessible to the diagnostic department, the admitting section, the emergency section and the social service department. The layout of the second floor, shown below, provides accommodations for thirty-two interns, a social room and bathrooms.





The outdoor solarium, thirteen floors above the noise of the street, overlooks Stuyvesant Square Park and the towers of lower New York.

vations when the hospital was in the planning stage.

The board of trustees, having imagination, faith and public spirit, undertook to create a hospital that would serve as a model institution, one that would be built so that its utility would not be affected long after the average institutional structure had deteriorated. As a result of this foresight there was created an institution for which the initial expense was not spared but for which, for this reason, the upkeep proved considerably lighter than the upkeep of an institution built along conventional lines.

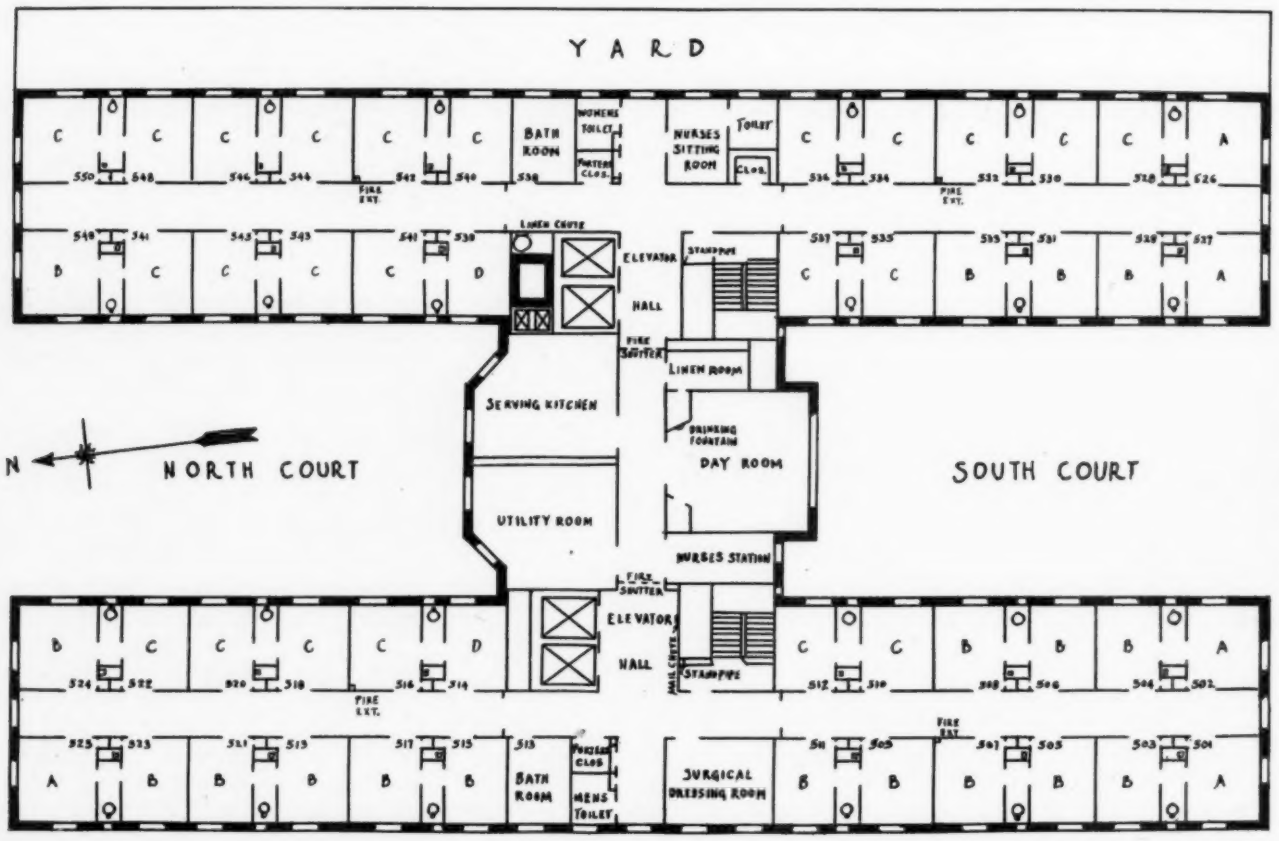
The value of buying the best materials was clearly demonstrated. It was felt that it would be wiser to avoid the necessity of making radical changes and repairs, which inevitably follow as a result of overeconomical flimsy construction and hasty planning. This was accomplished by a consideration of diverse usages of different portions of the building and the durability of the equipment.

Towering high into the air above the surrounding buildings, the new Beth Israel Hospital is free from the darkness and the noise of the city. Readily accessible from all parts of the city, it is situated on the east side of Stuyvesant Square Park, with various parts of the building played on by the sun throughout the day.

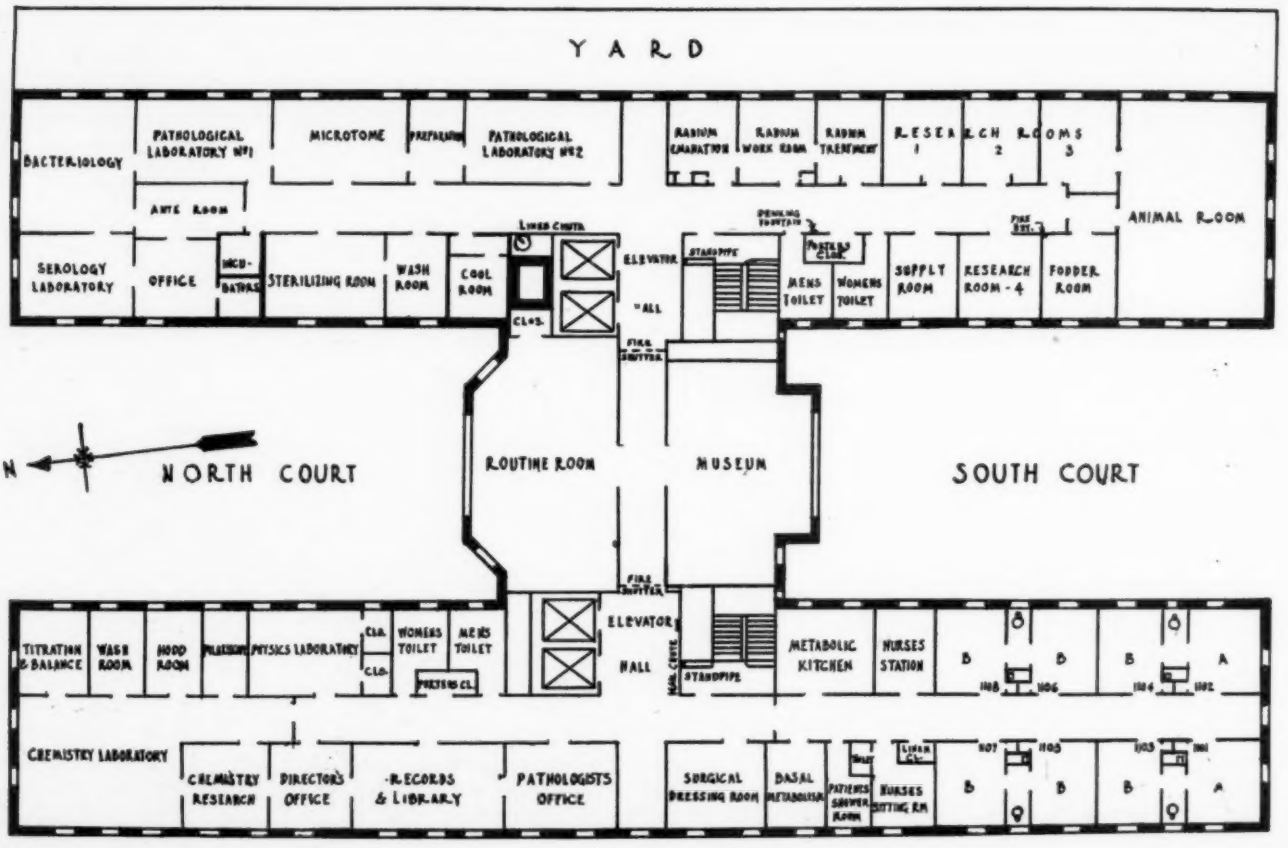
The exterior of the structure is fashioned after the Italian style, characterized by simple wall space and restrained ornamentation and projections. There is presented, therefore, a building which while it is lacking in ostentation possesses a definite dignity of expression.

There are four attractive entrances: The main entrance to Stuyvesant Park East is a tall two-story vaulted archway, simple and impressive yet unpretentious in its appearance; the doorway on the Sixteenth Street side of the hospital is an entrance through which patients can reach the application, diagnostic and social service departments; on Seventeenth Street the entrance leads to the auditorium and consists of three doorways, making ingress and egress more convenient; the driveway which runs through from Sixteenth Street to Seventeenth Street has an entrance to the chapel, the receiving department, the patients' admitting department, the emergency department; it has also an employees' entrance and a general entrance to the free section.

The building is H shaped above the third floor to permit the maximum amount of fresh air and sunshine in every patient's room. Its ground plot

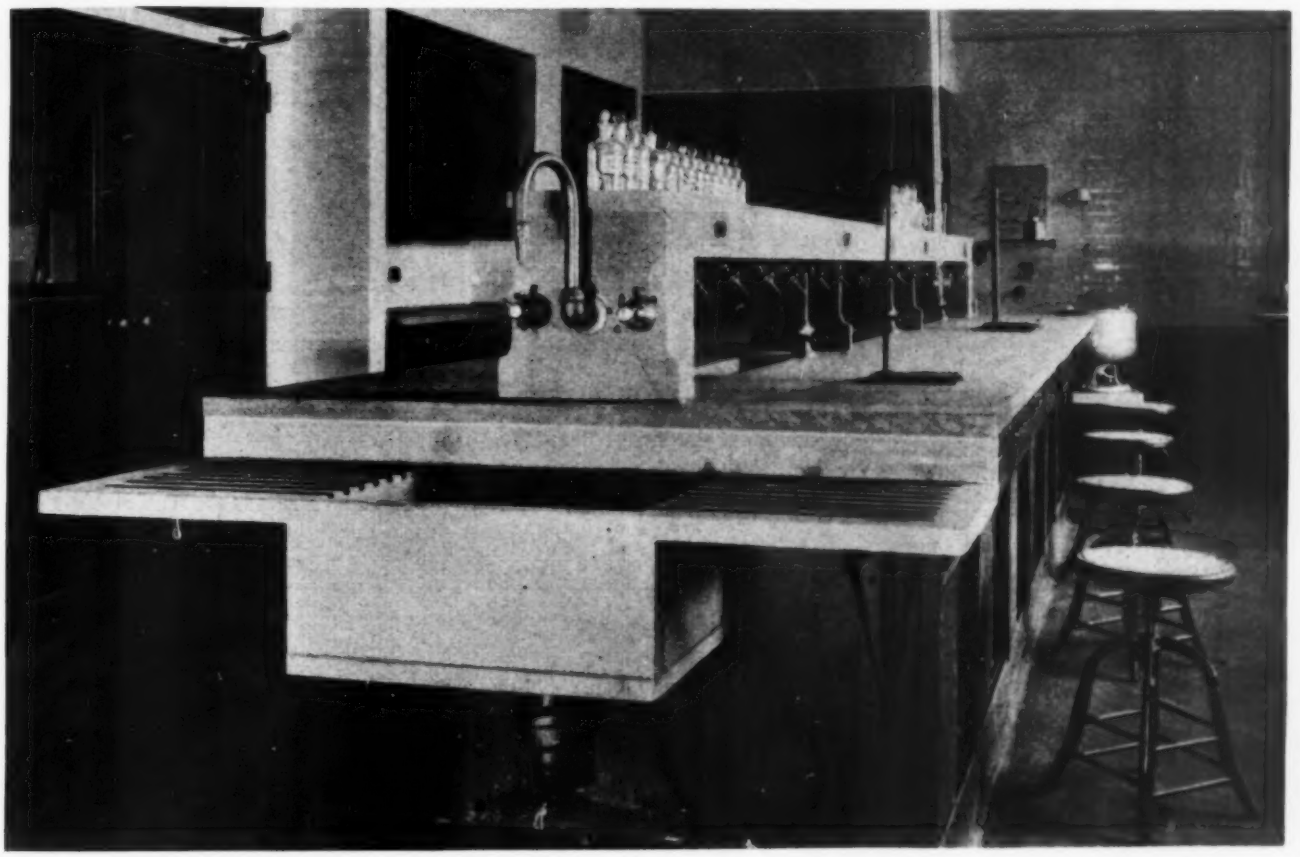


The fifth floor, pictured above, like the sixth and seventh floors, contains individual rooms in which all classes of patients are treated. The laboratory department is on the eleventh floor, shown below. Here are routine, museum, animal, pathology, serology, bacteriology, chemistry and research sections.



is 184 by 120 feet, and the building occupies the whole plot, with the exception of the rear twelve feet, used as a driveway. This isolates the building and permits free ventilation on all four sides.

The walls are graceful and harmoniously planned. The ground floor is of limestone with a granite base. The second and third floors are of limestone and the floors above are of brick in shades of light buff with terra cotta quoins. It has been the goal of those engaged in this work to conceive a structure which while entirely consistent with sanitary requirements will be as remotely institutional as possible.



In this well equipped laboratory many routine tests necessary in the functioning of an up-to-date hospital are made.

There are 500 beds, most of which are in individual rooms for patients of modest means. Each room is completely outfitted, being wired for x-ray, electrocardiography and physical therapy services and piped for portable bathtubs. There are also connections for a radio, a telephone and nurses' signals. Each utility room is equipped for food preparation, ice bags, hot water bottles, sterilization, ice cold running drinking water, bedpan and urinal disposal. We are able to cut down materially on the time and labor of the nurse and to obtain for the patient immediate response to call and treatments by reason of this arrangement. With this system, fewer nurses are required than would ordinarily be needed to care for an entire wing of individual rooms for the white collar group. Special chart cabinets in patients' corridors have been provided for every four patients, convenient for the doctor and out of sight and reach of the patient or his relatives. There are also special signal devices for nurses' calls and for emergency calls.

The advantages of separate rooms are many. Outstanding are the elimination of corridor service, the avoidance of any proximity to moribund cases and the adjustment of temporary ventilation to suit the needs of the individual patient rather than to coincide with the requirements of an entire ward. A single room makes the patient more accessible to his relatives who can see him as frequently as they like without fear of disturbing other patients. An individual room also affords an opportunity for the patient to rest when he so desires without fear of disturbance from others, one of the most patent defects of the ward system. It also makes possible prompt attention to utility needs.

A patient removed from his home is a sensitive plant transferred to new soil. On the theory that certain comforts will aid in the speedy recovery of the patient, we have provided lounge rooms and sun parlors, solariums and roof gardens where the convalescent patient and his relatives and friends

may converse and lighten the strain of hospital routine.

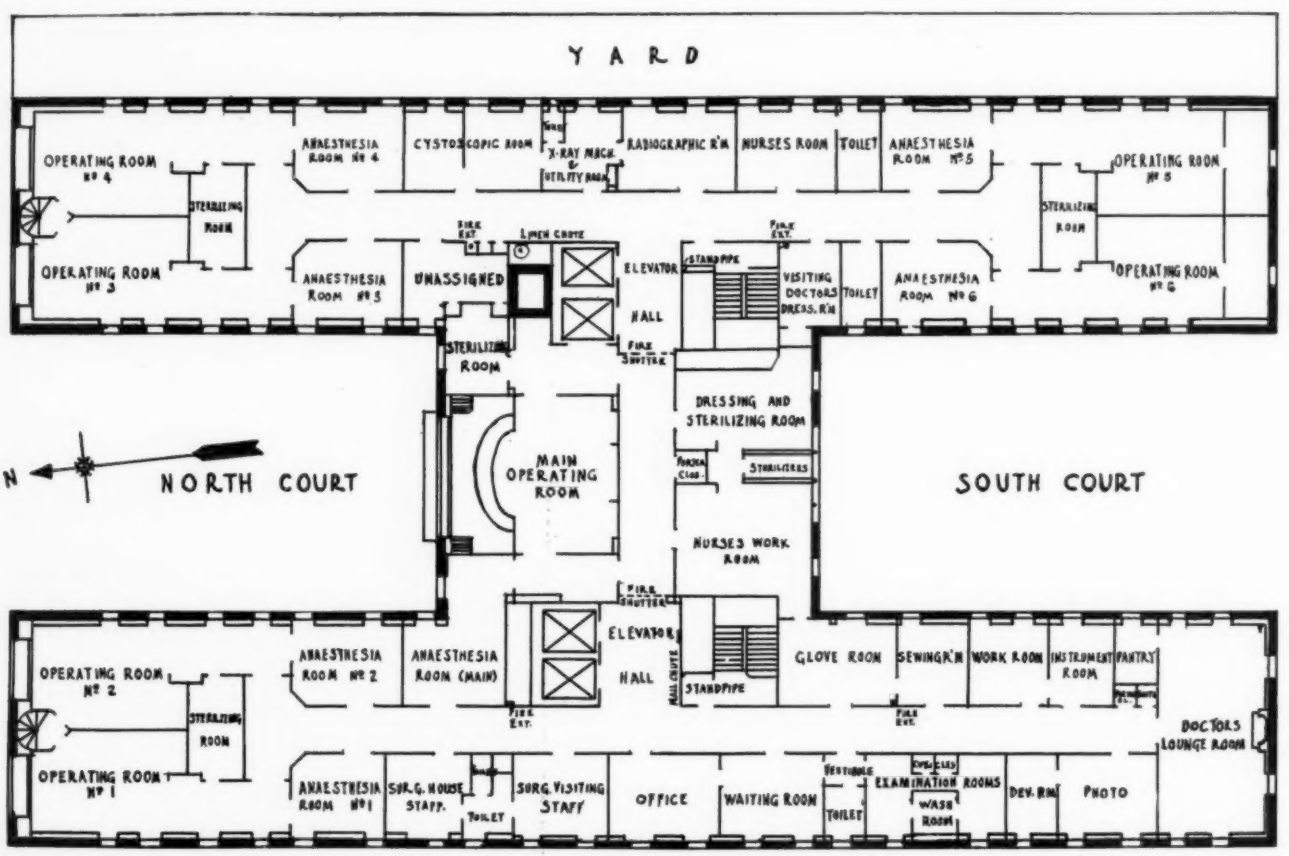
The individual rooms are not utilized for any definite branch of the service throughout the year. In keeping with the idea of the individual room hospital, Beth Israel provides for the treatment of patients regardless of disease and sex to the full extent of the rooms available, and the treatment is not confined to the limitations created by the definite allocation of beds to particular specialties and particular sexes, another defect of the ward system. Quarantine and isolation problems become simplified with the individual room system, and when repairs are necessary only one person is discommoded.

Let us tour the building, beginning at the top story which is the fourteenth floor above the street level, below which there are three floors. Here we find the fan and motor rooms. Other rooms include a nurses' demonstration room used as such temporarily, a nurses' lecture room and a fireproof record storage room.

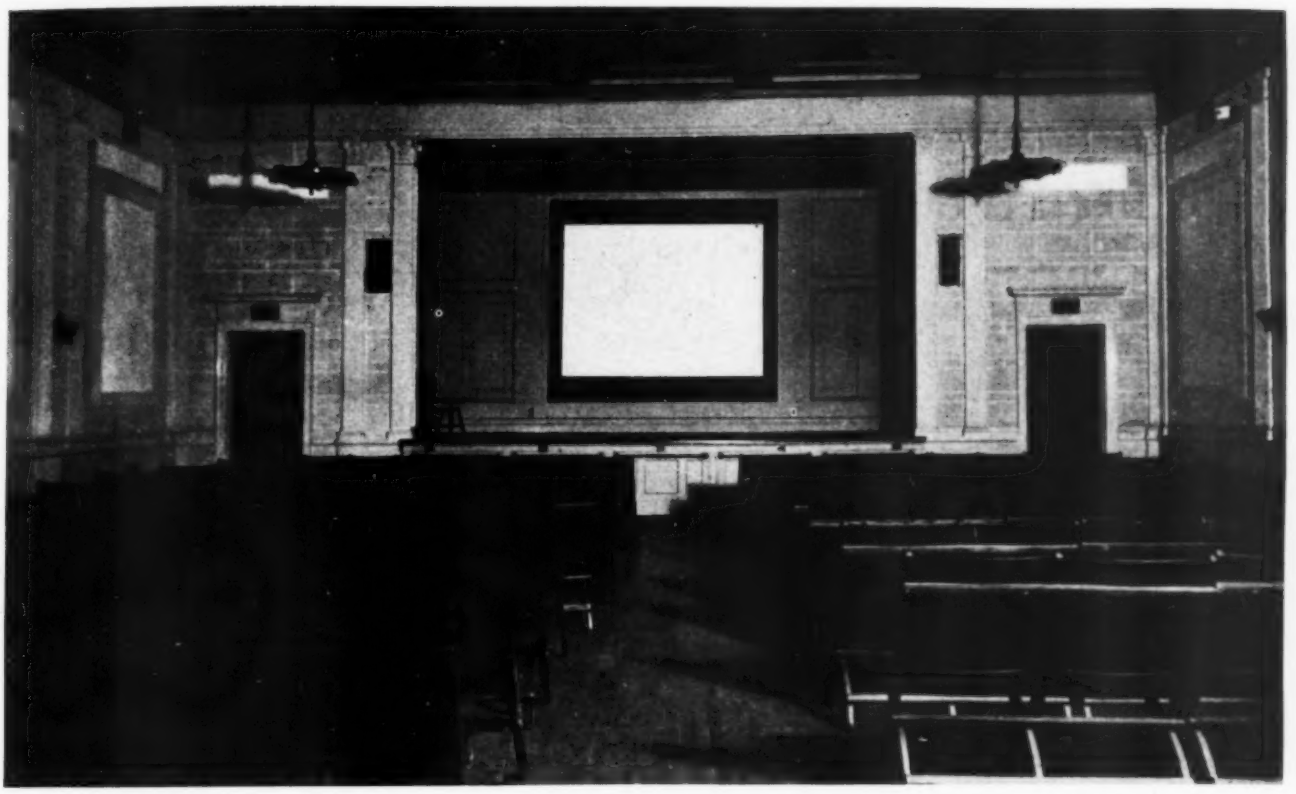
On the thirteenth floor we find the heliotherapy department with separate sections for men and women for sun treatment in the nude. Here we also have a solarium with indoor and outdoor sections. This is used by patients and their visitors and by the nurses for monthly dances. A room has been provided for the sunning and airing of mattresses and pillows. The central sterilizing water plant is also on this floor as is the radio receiving and program distribution room. From this floor visiting physicians descend to the observation stands of the various operating rooms on the floor below without crossing the sterile fields of the operating room.

The twelfth floor is the operating pavilion. It contains an amphitheater for demonstration purposes, four general operating rooms, one nose and throat operating room with a dark room section, one eye operating room with a dark room section, an x-ray operating room devoted to orthopedic surgery and to the removal of foreign bodies, a cystoscopic section with two divisions and x-ray facilities. Each operating room has its individual anesthesia room. For every two operating rooms there is a sterilizing room. These two operating rooms are intercommunicating.

For the convenience of the operating surgeons there is a suite of rooms which the doctors use as their private office on their operating days in which they may consult with and examine their private patients and complete their schedules without interference from office practice. This part of the floor is separated from the rest of the operating pavilion and serves the purpose of promoting



The entire operating facilities are centralized on the twelfth floor. It contains an amphitheater, four general operating rooms and one nose and throat operating room.



The auditorium, seating 300, is utilized for health lectures, moving pictures, meetings and social functions.

the peace of mind of the doctor who can have occasional patients meet him at the hospital between operations he may be performing. He is thus saved the time and the energy it takes to get through city traffic. This also prevents the cutting down of an operating room schedule and the postponing of operations and helps the doctor to keep in contact with patients.

Sterile water is piped throughout the building from a central system on the thirteenth floor. There is a photo research department to take pictures of patients, to perform microphotography and color photography and to prepare lantern slides for lectures. A nurses' workroom has special arrangements for dressing sterilization. The sterilizer is arranged with both ends accessible so that the dressings may be fed into it in one room and, when sterilized, removed in another room. This arrangement ensures the sterility of packages. We have provided three dressing rooms, each equipped with showers, lavatories and other conveniences, for the visiting staff, the intern staff and the nursing staff. A comfortable and artistically furnished lounge for the operating staff is also on this floor. It is equipped with a serving pantry for food and drink.

On the eleventh floor is the laboratory department which consists of routine, museum, animal, pathology, serology, bacteriology, chemistry and research sections with their accessory rooms. In the serology section there is a special cabinet for sterile transplantation. The radium department, with facilities for the making of radium emanation, is also on the eleventh floor. The southwest wing consists of eight rooms, a kitchen and a section for basal metabolism. It is the typical arrangement of bedrooms, with utility rooms between each two and with the necessary kitchen, nurses' station and treatment room for metabolic cases.

How Convalescents Are Provided for

The tenth floor is intended for use as a convalescent floor and the present arrangement of using it for acute cases is temporary. This floor consists of four wards, twenty-four beds in each, divided into two cubicles of two and four each. The distal end of each ward will serve as a lounge room. These wards are intended for convalescent patients who after they are up and about can leave their individual rooms and use this floor for a dormitory. Each ward has its own thoroughly equipped nurses' station, utility room and toilets. On this floor are a reception room, a serving kitchen and a patients' library.

The ninth floor consists of twenty-eight individual rooms for private patients. These rooms, with bathrooms adjoining, are on the southern side of the building.

The northeast wing of the eighth floor contains a completely outfitted physical therapy department, with provisions for water and electric treat-

ment, static, cabinet baths, arm and leg baths, Nauheim baths, continuous baths, colonic irrigations and Scotch douches. The southeast wing contains the x-ray deep therapy department. The north and southeast wings contain individual rooms which are described in succeeding paragraphs. There is a special room making possible the treatment of six patients at one time for a protracted period.

The Heart of the Hospital

And now we come to what is the heart of the hospital, the individual rooms in which all classes of patients are treated, on the fifth, sixth and seventh floors. These floors contain individual rooms, forty-eight rooms on each floor. These rooms are wired for telephone, x-ray, electrocardiography, physiotherapy and diagnostic services, for treatment instruments and are piped for portable bathtubs. There are also radio and nurses' signal connections. The utility sections between each two patients' rooms provide for food and drink preparation, for ice bags, for hot water bottles, for poultices, for sterilization, for cold drinking water and for bedpan and urinal disposal.

In the east wings of the fourth floor are the maternity section, two nurseries, doctors' sleeping rooms and soundproof rooms with barred windows for women in labor as well as the typical day room, the serving kitchen and the surgical dressing and general utility rooms. The west wing contains typical rooms not necessarily limited to maternity patients.

Pediatric Department Is Well Equipped

The pediatric department is on the third floor with 102 beds with an infants' division containing special cubicles in which mothers may nurse their babies. The babies are passed through to the mothers from the wards. The corridors are of clear glass partitions to enable mothers to see their children from the corridors. This avoids visits to the wards. This floor contains indoor and outdoor playrooms, an incubation room for four infants, a special formula room for bottle babies, a serving kitchen, a surgical dressing room and a nurses' station. The playroom has lovely pictures of child life on its walls and ceiling. The outdoor section is divided in two parts, one sheltered and one wholly outdoor, with swings, sand boxes and plants.

The intern quarters occupy the entire north section of the second floor, with provisions for thirty-two doctors. These quarters are equipped with a social room and bathrooms. The southeast section is occupied by x-ray and cardiograph departments which contain the latest x-ray apparatus for diagnostic purposes. Offices of the administrative officials occupy the south and southeast sections. These consist of the offices of the executive director, the executive secretary, the assistant executive director, the superintendent of the training school and the assistant superintendent of training school. Here also are the accounting offices, the board of trustees' meeting room and the admitting office for pay patients as well as the information desk, the post office and the telephone switchboard.

The main floor contains the record department, which is easily accessible to the diagnostic department, the admitting section, the emergency section, the social service department, the discharge thoroughfare and the library. The social service department consists of a large waiting room, the director's office and rooms for eight assistants. This department also looks after problems of nutrition and teaches mothers the proper preparation of foods and their value.

Auditorium Seats 300

At Seventeenth Street and the driveway is a chapel, with a special entrance from the driveway. This is used as a synagogue and also serves as a chapel in connection with funerals that may have to take place from the hospital. Bodies are removed from the corner of the hospital that is remote from the patients' entrance.

The drug department consists of three sections: a vault room for alcohol, whisky, ether and inflammable chemicals, a stock and manufacturing room and a dispensing room.

In the driveway there is a special entrance for patients to the admission department from which all patients are admitted to the hospital. This department consists of a patients' receiving room and two bathrooms and a general waiting room. Here all patients are disrobed, bathed and clothed in hospital linen. Adjoining is the emergency room for accident cases. A special room is provided for isolation cases, pending their transfer to contagious or mental disease hospitals.

The seating capacity of the auditorium is 300. It is utilized for health lectures, moving pictures, meetings and social functions. The floor in this auditorium can also be utilized for dancing. It is from this auditorium that arrangements are being made to broadcast health lectures.

The culinary department is on the basement floor. Off the kitchen is a preparation room which includes a vegetable room, a fish room, three refrigerator rooms and a preparation room proper, a scullery for pots and pans, a separate dishwashing room and a silver burnishing room. A diet

kitchen for special diets is provided, as well as a cooking laboratory where the nurses receive their instruction in dietetics, and a demonstration room which enables the students to put their knowledge into practice. There is a storage room for cereals, flour meal and canned food, and a special room is also provided for making emulsified milk and ice cream. A flour room and provision for a bakery are in this part of the building. The dining room adjoins the kitchen, with counter facilities for self-service for the doctors, the nurses and the administrative staff.

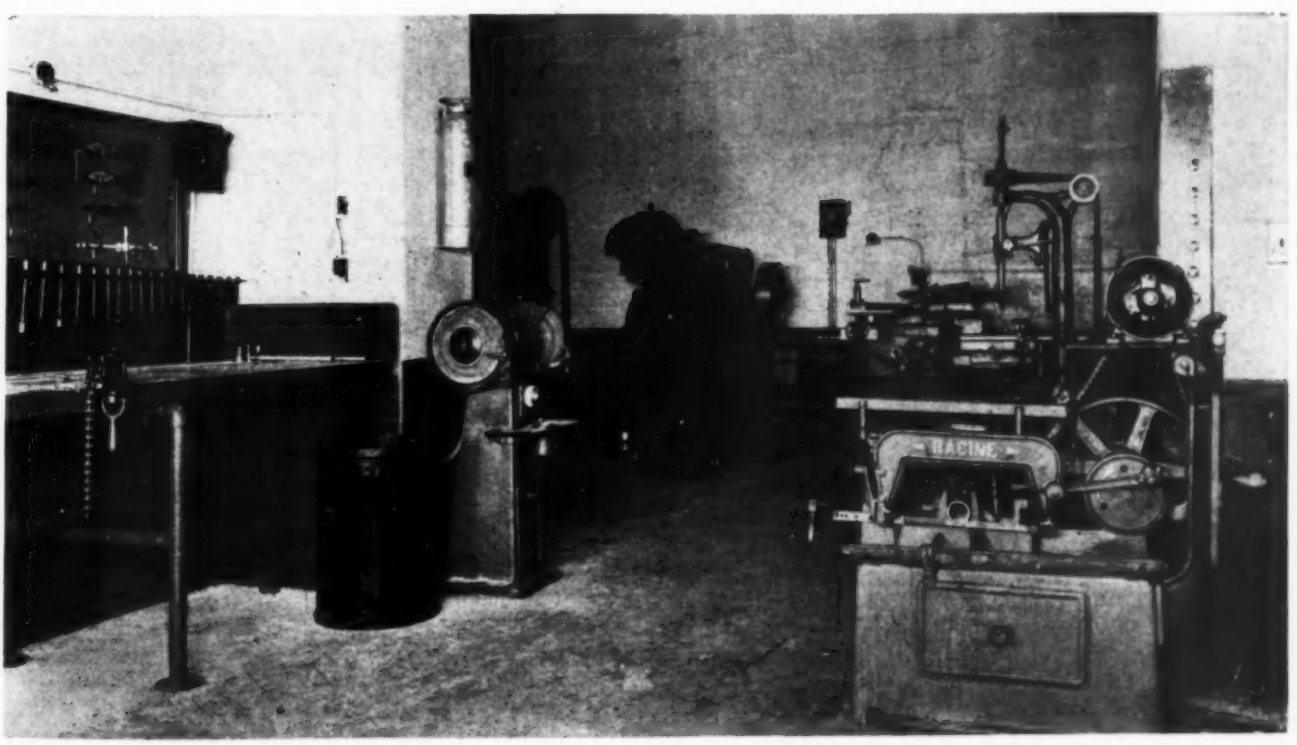
Separate locker and lounge rooms are available for men and women employees. These rooms are equipped with showers, with laundry services and a sewing room in the women's section, and a barber shop in the men's section. Entrance to this section is from the driveway. There is a separate special Nurses' and pupil nurses' locker room with showers, having a direct entrance from Livingston Place.

The sub-basement contains the power plant, a laundry, a dog kennel for scientific research work, a patients' clothes room, a garbage assorting room, a carpenter's shop, an electrician's shop and a paint shop. It has also reserve storerooms for gauze, for cotton and for housekeeping, medical and other supplies. The power plant consists of a carbon dioxide ice making plant, a generating plant for the production of electricity, an engineer's office, a machine shop and a blacksmith shop. In the mechanical shops, there is special equipment for even such unusual work as major repairs to the x-ray machine, the manufacturing of new odd furniture and the making of special research apparatus. This department has justified this installation many times over in the articles manufactured by our own mechanical staff. The morgue is on this floor and consists of two divisions—a room for the preparation of the body for burial and an autopsy room of two sections.

In the boiler room are oil and coal burners. We use oil to avoid coal and ash handling. Arrangements have also been made so that coal may be used whenever necessary. We have found in the use of oil not only an elimination of the nuisance of the dust of coal and ashes but also a reduction in expense. At the time we planned the heating system of the hospital, we were advised by engineers that since an acute shortage of coal was in sight it would be wise to plan for oil. In this room is the incinerator where all refuse is burned and an accumulation of garbage thus obviated.

Signals in the corridors and in the bathrooms and nursing stations provide intimate contact with the patient at all times.

The elevators are specially lighted and ventilated. The service elevator opens directly into the serving room. Each elevator is of the most modern type with an arrangement for the automatic opening and closing of the doors. It has also a device that enables the car automatically to stop level



The machine shop in the sub-basement has more than justified its installation by taking care of all necessary repairs and making special research apparatus.

with the floor. There are four passenger elevators, one of which is also used for service. There are two electric dumb-waiters connected with each serving kitchen, a freight elevator and a body lift from the morgue to the chapel.

The main entrance to Beth Israel Hospital has at the head of the grand stairway a colorful tapestry containing a scene entirely disassociated from medicine or illness. The tapestry was donated by a friend of the hospital. It is intended to have a cheerful effect upon the patient.

The diagnostic department will treat regularly not only the sick but the well. This department is not as yet functioning but it is expected to be so conducted that it will be welcomed by the family physician as a diagnostic aid.

The entire building is intended to operate as one unit. No department has been separately planned. It is all part of a definitely correlated entity. Provisions have been made not only for its functioning during normal times but also for protection in emergencies.

Giving the Patient Fire Protection

By an arrangement of fire shutters electrically operated, it is possible to remove the patients in their beds from one side of the building to a zone of safety on the other side of the building, the patient at the same time being under medical care. In this way a complete separation is effected from that part of the building which is menaced.

There are three libraries in the hospital for the accommodation of physicians, research workers and patients. The one on the laboratory floor is intended for the laboratory department, that on the main floor for the medical staff and that on the tenth floor for patients.

Each floor has a person in charge to give visitors whatever information they desire and to direct them to their destinations without delay, thus avoiding any unnecessary wandering through the building.

All floors are of rubber. This provides a soft warm floor for the comfort of both patients and nurses since rubber is conducive to quiet, has an excellent appearance, is a fire retardant and lends itself readily to cleaning.

One of the greatest defects in the American hospital system has been the lack of provision for the great middle class. Members of this group, unable to pay for private rooms, are compelled, when they need hospital care, to face the unpleasant alternative of applying as charity patients. It is the purpose of Beth Israel Hospital not only to abandon all sectarian lines in its welcome and treatment to all patients but also to remove all discriminations made by wealth.

Birmingham May Become Medical Center of Britain

With the completion of a hospital center plan for Birmingham, England, that city is confronted with the possibility of becoming the hospital and medical capital of Great Britain, according to an article by Capt. J. E. Stone, secretary, Birmingham Hospital Center, in *The Hospital.*

The hospital center scheme proposes to bring together on one site, and in organic connection one with the other, the medical faculty of the University of Birmingham and a new hospital, both sets of buildings being designed on the latest and most approved methods. Such an arrangement will be ideal from the point of view of the patient, the student, the professor and the investigator, effecting a degree of cooperation that does not exist at present in any other city in the country.

A part of the scheme involves the erection of a general hospital and buildings for the medical faculty of the university, but the arrangements made by the executive board are so flexible that as and when special hospitals now established in the city find it necessary to extend beyond the boundaries of their present sites, they will find that ample room is available for them in the new center.

Function is the controlling factor in the center plans—what the center can accomplish has been given precedence over its looks. The buildings, therefore, will be devoid of mere ornamentation, reliance being placed on mass and lines to secure simplicity, refinement and grace.

The estimated cost of the completed center will be: hospital, £1,052,432; medical faculty, £93,444; total, £1,145,876.

Bibliography on the Cost of Medical Care

The latest bimonthly bulletin of the special sociological library maintained by the Russell Sage Foundation—a bibliography on the cost of medical care—is now available for distribution. The copies sell for ten cents each. Other bimonthly bulletins published during the year were bibliographies on the following subjects: Cooperative Housing; Rural Life From the Aspect of the Social Worker; Prison Libraries; Books on Social Subjects Published During 1929; Juvenile Delinquency; Leaders in Social Adventure.

This most recent bibliography has been carefully compiled, all books, conferences and magazine articles on the much discussed subject of the cost of medical care being listed.

Is Standardization of Surgical Technique Possible?*

By JOSEPH C. DOANE, M.D.
Medical Director, Jewish Hospital, Philadelphia

STANDARDIZATION is a word that sometimes strikes fear and suspicion into the hearts of those likely to be adversely affected by some form of standardization. Particularly is this true when the word is used in connection with any of the national organizations that have taken upon themselves the work of endeavoring to bring order out of the present chaotic system of procedures now in vogue in our institutions.

Regulating Operative Procedures

"Thou shalt" and "thou shalt not" are commands that are always inclined to bring a feeling of resentment and a long time must elapse before physicians and hospitals realize the good that might result from an endeavor to standardize such hospital matters as the number of interns and nurses and the type of staff organization and staff meetings.

But is there no optimum method of preparing patients for abdominal, breast, thyroid or leg operations? Is there no method of choice of draping patients and of sterilizing hands and gloves? Can there be no concensus in regard to the most efficient steps that should comprise certain more or less routine operations? It seems that an effort has been made to standardize everything but the acts of the surgeon himself. Perhaps human beings are not subject to such regulations. Perhaps because human brains and arms and fingers are in no two ways similar, so must each operation as performed by one individual vary in many respects from that performed by another. And yet one asks if such an attempt to regulate preoperative, operative and postoperative procedures were possible, would it not be advisable from the standpoint of patients doctors and hospitals?

Big business has developed its present efficiency because it has been able to purchase on a bulk basis and because it has reduced waste to a minimum, whether it is expressed in terms of motion, time or money. It is possible to learn something in regard to effective methods of saving the hospital money, whether expressed in any of these terms, by copying methods recognized as efficient by the business man. As the situation exists, success has not attended the efforts of many institutions to standardize either the acts of members of the surgical staff or in some cases even the materials and instruments with which they work. Many physicians feel that patients who visit the surgeon's office should not be admitted to the hospital for operation on the same day in cases of elective major surgical needs. In some institutions definite rules exist in regard to the minimum time during which patients must be under study before they reach the operating table. Certainly the location of a pain in the right lower quadrant of the abdomen in no way gives information as to the manner in which a patient will react systemically to surgical interference.

The Importance of Examinations

I recently read an article in a current medical magazine entitled "In Defense of the Stethoscope." Shades of René Laënnec! Has it come to the point where the stethoscope needs defense? To be sure, the x-ray and the clinical laboratory have been allowed to replace careful physical examinations in many hospitals, much to the detriment of the hospital and to the scientific advancement of the physician himself. But the stethoscope must still remain in the hands of the clinician, his chief and sometimes the only instrument of precision in making the diagnosis. A rule should be found on the roster of every surgical and medical department forbidding the transfer of patients to the x-ray laboratory for study before careful historical and physical investigations have been made. It is difficult to enforce the basic requirement that urinalysis and chest examinations made within twenty-four hours shall be recorded on all preoperative patients' charts. I recently heard of an incident in which a psychopathic patient was certified as suit-

*Read at the hospital standardization conference of the American College of Surgeons, Philadelphia, October 13.

able for operation, his heart and lungs being approved for ether. At operation this patient was found to have four broken ribs, a puncture of the diaphragm and a laceration of the splenic flexure of the colon. When there is no heart in the work there is usually little practical effectiveness. Many of the preoperative notes on the patient's chart represent the true condition of his heart and lungs about as accurately as those in the case cited above.

Why Such Haste to Operate?

I have never been able to understand why in elective operations there should be such a desire for haste. It seems difficult to rationalize a decision to operate in the presence of moist râles at the bases of both lungs and a reddened throat when at operation such attention to detail is displayed in carrying out the steps of the procedure itself. It seems unreasonable to go forward and unprotestingly accept three to five postoperative pneumonia deaths out of every thousand patients operated on, the proportion noted in a recent survey of New York hospitals on this subject. It should take little imagination on the part of the physician for a few crackling basal râles prior to operation to be magnified into later death rattles.

The requirements of the American College of Surgeons in regard to preoperative study are in my opinion too lax than too strict. With our present knowledge concerning the cause of death following surgery of the right upper quadrant, is there any possibility of standardizing the preparation of these patients? If the use of dyes reveals normal hepatic function or the lack of it, should a routine study of this sort be required? Has the preoperative intravenous use of calcium and glucose in the presence of known hepatic disfunction reached the stage where it can be practiced as a routine? Such questions as these pass through the mind of a clinician who has the highest respect for surgical judgment and skill and yet who is endeavoring to understand why in more hospitals the clinician does not as a routine, consult the surgeon and the surgeon the clinician in regard to the condition of border line cases.

A medical colleague told me recently of an instance in his practice in which he felt that the consultation of the surgeon and the clinician was actually life saving. An unrecognized auricular fibrillation was being improperly treated because of being improperly understood until the surgeon and the physician were brought together in contact with the patient. Let it be clearly understood that I do not claim any unusual skill on the part of the clinician nor do I contend that the internist is able to save life when the surgeon is not.

The statement above must be considered simply as a plea for teamwork, which so frequently is not seen, particularly in the case of the ward patient. Would it be possible to have a standing rule enforced relative to securing a surgical consultation whenever a case of typhoid is diagnosed, and would not the patient with thyroid toxicosis be much safer if all of our hospitals required that he be examined by a clinician before operation? Would it be unfair to require that every patient with a need for elective surgery be in the hospital at least twenty-four hours prior to his operation? In some institutions the days of barbarism in regard to the preoperative preparation of the patient are not gone. Would it be unreasonable to require that all preoperative patients be asleep by ten o'clock the night prior to their operations and that none be awakened for enemas on the following morning and that henceforth no preoperative patients be deprived of sleep because nurses have not had an opportunity to prepare the abdomen prior to midnight?

It has been suggested above that the distance from the medical to the surgical ward is frequently not great in actual linear measurement but is extremely long as far as the cooperation between the surgeons and physicians is concerned. It has been intimated also that the assignment of a surgeon to the medical department and a physician to the surgical department might result in much good for the patient. I am fully aware that in many hospitals this is the case. However, in more institutions daily conjoint rounds should be made in both of these wards with the internist or the surgeon, as the case may be, taking active part in these inspections of patients under treatment.

Making Ready for an Operation

Is there no procedure that may be denominated as most effective and safe in the preparation of the field upon which an operation is to be performed? It is confusing to the average surgical ward supervisor to endeavor to remember which type of abdominal preparation the individual surgeon prefers. Should the time-honored practice of shaving, scrubbing, applying iodine, alcohol or bichloride and a sterile dressing on the night previous to operation represent the modern belief as to the necessities in the case, or is there an equally effective and less time consuming procedure at hand? Surely there is no excuse for the existence on the ward books of the surgical department of as many types of abdominal preparation as there are surgeons on the staff.

Perhaps such a standardization of technique is a matter that should be considered by each individual hospital staff and yet is it not possible to glean from the experience of the members of the surgical

staffs of the hospitals in this country an opinion that could more or less generally apply? None will dispute the fact that insult to the nervous system of the surgical patient is a thing to be avoided, and yet in many hospitals nervous patients are sent to the operating room thirty minutes or more prior to operation and there are forced to observe terrifying white capped figures and to listen to the clatter of instruments and the frightening cries of patients undergoing anesthetic excitement. The appearance of some tonsil clinics to the uninitiated lay person can be described by no other word than ghastly. To be sure a busy surgeon must complete his afternoon's work in as short a time as possible, and yet when I remember that the patient's good must be paramount to all else, this haste assumes proportions actually harmful to the patient.

Surgeons' Idiosyncrasies to Be Discouraged

When the patient reaches the operating room, the same chaotic and individualistic system of procedures is often found. Is there no accepted effective method of preparing hands, of donning masks and gowns, of counting sponges and of draping patients? A leaf taken from the notebook of an efficient operating room supervisor in one of the leading hospitals in this country contained the following memoranda in regard to the twelve surgeons working there: (1) dressed by nurse; mask, gown, gloves. (2) no mask; will use hospital instruments if he does not bring his own. (3) never use flats; do not have them on sponge table. (4) provide special soap for hands; likes small cutting edge needles. (5) prepare kit of instruments even though he brings his own. (6) dressed by nurse; do not take too long to adjust mask. (7) always prepare for gallbladder operation when appendectomy is scheduled; furnish long rubber apron. (8) uses black mask on forehead. (9) supply gown with stockinet cuff. (10) dresses himself. (11) dressed by nurse; wears mask with chin band. (12) have two basins of brushes, two basins of soap ready at start of operations; do not put brushes in the soap.

As will be observed, most of these instructions with which the operating room nurse was burdening her mind are in reality of small moment and are not matters that directly affect the successful outcome of any operation. They are largely concerned with the method of preparing the surgeon for his work. One is inclined to ask whether special masks, gowns, aprons and caps are necessary, and to suggest the possibility of sparing the time of the operating room nurse by standardizing these.

In another hospital the following page was taken from the operating room supervisor's book covering methods of skin preparation, each of which refers to an individual surgeon: (1) ether, tincture of iodine, 70 per cent alcohol. (2) benzine, ether, iodine, 2½ per cent. (3) 2 per cent iodine, 3 per cent alcohol. (4) benzine, ether and two coats of 2½ per cent iodine. (5) mercurochrome. (6) iodine, 3½ per cent and 70 per cent alcohol. (7) picric acid, 5 per cent, 70 per cent alcohol, benzine and gentian violet. (8) green soap, sterile water, 3½ per cent iodine, alcohol.

One would be inclined to surmise that time and money could be saved in this institution if some concensus could be reached as to the best and safest way to prepare the skin prior to operation. Certainly it is reducing to an absurdity the inalienable right of the individual surgeon to decide as to his own technique when so many variations in the type of skin preparation are to be found. There must be one or a combination of several of these techniques that would represent a satisfactory degree of safety to the patient.

No greater catastrophe can occur than the loss of a surgical sponge. The American College of Surgeons is to be complimented upon its recent attempt to standardize the method of preparation, sterilization and counting of sponges. The great influence of this association will go far towards discouraging surgeons who insist on sponges of too varied size and manufacture and will strengthen the position of operating room supervisors and hospital superintendents in requiring a careful check upon the number of sponges in use.

Ensuring Accuracy of Sponge Count

At the Jewish Hospital, Philadelphia, the surgical staff has recently adopted a sponge count sheet upon which the operating room supervisor is required to certify as to the number of sponges she had at the beginning of the operation, the number placed in circulation and the count at the conclusion of the operation, and the surgeon to certify to the fact that he called for a sponge count and was informed that all sponges were accounted for. An interesting side light upon this step has been the opinion of an eminent attorney of Philadelphia to the effect that such a sheet would strengthen rather than weaken the case of a surgeon if suit were brought in the event of a sponge being left in the patient's tissues.

The size, texture and manufacture of laparotomy sheets certainly should not offer any cause for a decided difference among members of the surgical staff, and it is not fair for the hospital to be required to manufacture and keep on hand a particular type of laparotomy sheet for any individual surgeon. Most surgical clinics have procured a more or less standard set and number of instruments for the use of their surgeons. Still here and there an

inclination is observed for individuals to demand particular and costly types of instruments, while their colleagues are able to operate successfully with those of simpler design which cost less. A good golfer frequently can get as much distance with a niblick as he can with a spoon. In either case the ball reaches the green in an equal number of shots.

The hospital should provide proper and plentiful instruments with which to work. It should not be asked to furnish a separate table for each type of surgery, nor should its superintendent be made to feel that he is not performing his duty if he cannot promptly supply funds sufficient to purchase instruments which are rarely required. Again I am not suggesting that the surgeon should be transformed into a mechanical man or that he should become a mere combined cutting and sewing machine. I am urging patience and forebearance on the part of the busy surgeon when the hospital is not able immediately to procure all of the equipment and instruments that he requests.

No standardization of technique can be wholly successful, nor should the hospital expect the surgeon to perform his work with improper physical aids or unsuitable supplies and equipment. I am suggesting the manifestation of just a trifle less individualistic attitude on the part of the surgeon. An understanding of the hospital's financial problems often clarifies many of the doubts in the surgeon's mind as to why there is any hesitancy to purchase new equipment and supplies as soon as they are requested.

Regulating Operating Room Procedures

There should be no difficulty in standardizing the methods of preparing patients for the operating room or the hands of the surgeon. These are matters based upon the soundest of common sense. There should certainly be definite regulations as to the transportation of patients from the clinic to the wards and rooms and as to requiring that they be not left alone until they have recovered from the anesthetic. An interested visitor to some of the surgical wards of this country would be surprised to find such a variance in the dressing techniques employed. In the light of our twentieth century knowledge should it not be safe for the surgical intern to perform an infected dressing on the same day upon which he assists at a clean operation? It seems that knowing the method by which infection is carried such a rule is somewhat archaic.

I have perhaps asked more questions than I have endeavored to answer. This is because, not being blessed with surgical experience and skill, I have set down in an imperfect way some of the queries that have passed through my mind during the past decade or more. Hospitals in this country are spending millions of dollars in the conduct of their surgical departments. If methods could be suggested by which preoperative, operative and postoperative procedures could be more definitely standardized, a great good would indeed be accomplished. The surgeon and the hospital superintendent must work closely together in performing their ministrations to the sick. Each must understand the problems of the other and understanding they will be able together to perform a much finer type of service than could either working alone.

Comparing the Costs of Federal and Civilian Hospitals

Government hospitals, maintained by the Public Health Service, the Veterans' Administration and the Department of the Navy, are operated at lower per capita cost than are civilian institutions of similar character, it was stated recently by Lucy Minnegerode, superintendent of the nursing section, Public Health Service.

The per capita cost of $5 per day is considered moderate for a ward patient in a civilian institution, Miss Minnegerode declared. Hospitals maintained by the Public Health Service, she said, are operated on an average cost for such patients of $3.75 or less. Care given in these hospitals, she stated, is as good "in all the essentials," but "without the frills," as that provided in private institutions.

Referring to recent comment on "the high cost of medical care and the impossibility of patients of moderate means meeting expenses of illness," Miss Minnegerode declared that elaborate furnishings and attention provided in private institutions affect only "a very small part of the people who form the hospital population."

Average daily cost for each patient in the twenty hospitals maintained by the Department of the Navy was $2.72 during the last fiscal year, it was stated on behalf of the bureau of medicine and surgery. Operation of the forty-nine hospitals of the Veterans' Administration results in an average per capita daily expense of about $3.85, it was stated orally on behalf of the administration.

The forty-nine hospitals of the Veterans' Administration provide various forms of treatment, it was added, and the cost for operation and maintenance of "general" hospitals, which are comparable to private institutions, is somewhat higher than the average. The cost in these institutions is figured at about $4.40 daily per capita.

Judging Comparative Values of Kitchen Equipment—Part II

By VINCENT R. BLISS
Chicago

IN THE December issue of THE MODERN HOSPITAL a simple method for judging comparative values of kitchen equipment as made of various materials was described. This method of appraisal is the result of a broad study of performance and is intended to assist hospital directors in determining the grade of equipment that should be specified in order to assure maximum value per dollar invested.

The materials considered included galvanized steel, plain steel, polished, nickel plated and tinned copper, glass and other substances as compared with noncorrosive white alloy metals of high nickel content. The previous article concluded with the first of a number of specimen comparisons of important classes of kitchen equipment, based upon data gathered through the investigation. These typical comparisons are further discussed here.

Three grades of dishwashers were considered, those of galvanized steel, copper and noncorrosive white alloy metal construction. Naturally, it was necessary to assume that the three machines were all of the same type and make, for otherwise mechanical principles and efficiency would confuse the ratings of value. In comparing dishwashers a problem arises that has not been encountered before, namely, that the mechanical operating parts will outlast the body of the machine in some cases while in others the reverse is true. This mechanical element was borne in mind in determining the length of serviceable life for each grade. Seven years for galvanized steel and twelve years for copper machines are fair estimates of durability according to testimony received from authoritative

After thirteen years of use this carefully chosen kitchen equipment is still in excellent condition.

sources. For alloy metal it may be said that the body and other parts constructed of this material will outlast the mechanical operating parts and in view of this the length of life will be figured at only twenty years. For a typical medium sized machine we thus reach the following comparison based upon original cost and length of life only:

	Galvanized Dishwashers	*Copper Dishwashers*	*Noncor. White Alloy Metal Dishwashers*
Length of Serviceable Life	7 years	12 years	20 years
Original Cost	$1,000.00	$1,225.00	$1,450.00
Cost per Year	142.85	102.08	72.50
Value per Dollar of Cost (based on length of life only)	50.7%	71%	100%

For dishwashing machines as for some of the other classes of equipment considered, other elements of value add materially to the comparison. In sanitation and ease of cleaning the difference between the three types of dishwashers is considerable. A galvanized steel machine requires frequent painting and even with this attention it is still difficult to keep clean. Copper presents less of a problem but nevertheless must be cleaned and polished frequently and vigorously. Noncorrosive white alloy metal here retains its original condition with comparatively little attention. For economy of cleaning, therefore, we may adopt the ratings: galvanized steel, 30 per cent; copper, 50 per cent; alloy metal, 100 per cent. Sanitary conditions will parallel ease of cleaning and the same percentages for the three grades will therefore apply. Good appearance has much importance also, for a handsome machine will receive more careful treatment at the hands of employees than a poorer looking one. A summary of these points gives the following interesting figures:

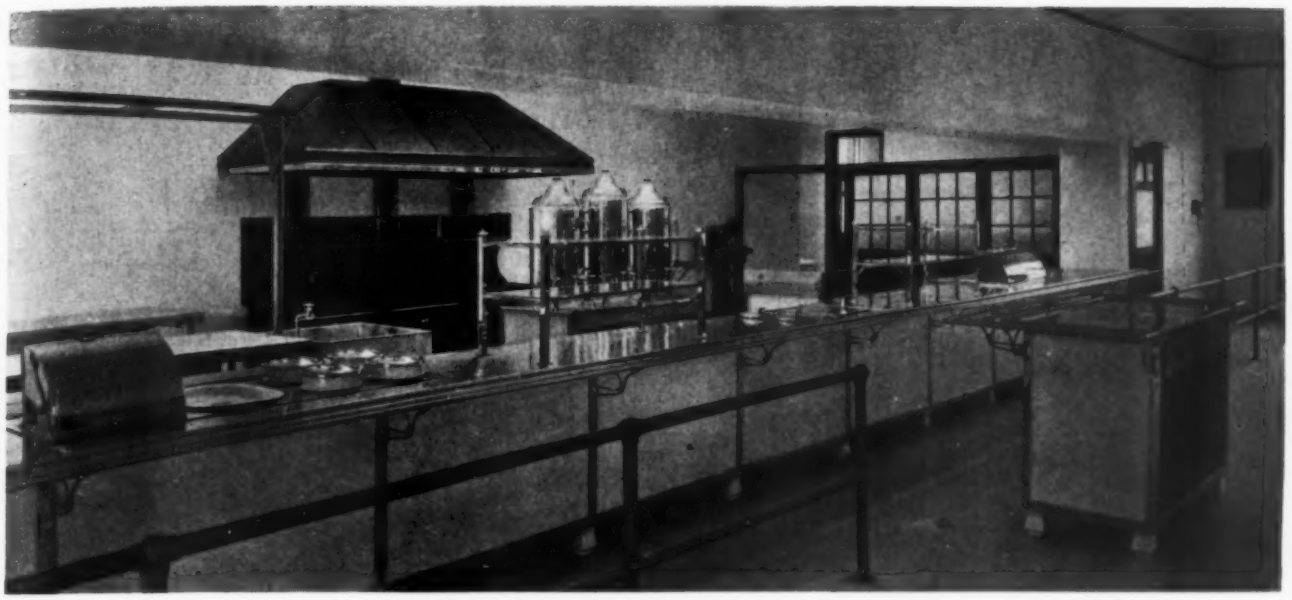
	Galvanized Dishwashers	*Copper Dishwashers*	*Noncor. White Alloy Metal Dishwashers*
Value per Dollar of Cost (based on length of life only)	50.7%	71%	100%
Economy of Cleaning and Upkeep	30.0%	50%	100%
Sanitary Value	30.0%	50%	100%
Value of Appearance	30.0%	50%	100%
Average Value per Dollar	35.2%	55%	100%

In comparing polished steel and alloy metal top work tables the conditions met with are again different than those considered heretofore. Polished steel top tables of heavy gauge material and good workmanship are quite durable. Their length of serviceable life is the subject of some variation in opinion among the authorities consulted, these opinions running from as low as ten to as high as twenty years or more. This difference in testimony is understandable, for the life of a steel top table depends greatly upon the purposes for which it is used and the care with which it is maintained. If the table is used where it will be subjected to the action of water, its life will probably run from ten to fifteen years and if water is not present to any serious degree an estimate of approximately twenty years is probably fair. For alloy metal tables the life in either case may be estimated at thirty-five years. As to original cost it is found that the alloy metal tables are generally figured at a little more than double those of polished steel. Based upon length of life only, the comparative values per dollar of cost would be approximately these: alloy metal top tables, 100 per cent, polished steel top tables, 90 per cent to 120 per cent.

With work tables, however, sanitation, economy of upkeep and appearance are of greater importance than simple durability. A work table because of the purposes for which it is used demands the strictest cleanliness and the highest sanitary properties. From both of these standpoints the noncorrosive white alloy metal top is infinitely superior and its ability to remain in spotless condition with little attention goes a long way toward removing the danger that any unsatisfactory condition might result from neglect on the part of employees. Therefore, the ratings, alloy metal top tables, 100 per cent, and polished steel top tables, 20 per cent, are considered fair for both sanitation and economy of upkeep. As for the value of appearance, we may adopt the figures of 40 per cent for polished steel top tables and 100 per cent for those of alloy metal tops, thus assigning a slightly greater importance to appearance than was done in the case of sinks and less than for urn stands or steam tables.

From this we arrive at the following general comparison:

	Polished Steel Top	*Noncor. White Alloy Metal Top*
Value per Dollar of Cost (based on length of life only)	90% to 120%	100%
Economy of Cleaning and Upkeep	20%	100%
Sanitary Value	20%	100%
Value of Appearance	40%	100%
Average Value per Dollar	42½% to 50%	100%



Noncorrosive white alloy metal was chosen for the counters, steam tables and work tables of the two kitchens pictured on this page.

This comparison will also apply to dishwarmer tops. Here polished steel is at an additional disadvantage because of its tendency to soil the bottoms of trays and dishes.

When computing the values of galvanized steel *versus* white alloy metal dish tables, one finds the condition to be about halfway between those involved with sinks and with work tables. The life of galvanized steel dish tables is variously given at from five to fifteen years, and for our purposes it will be safe to adopt a figure of twelve years, which is somewhat higher than the average opinion. For noncorrosive alloy metal the life may be figured as indefinite. As to original cost one representative manufacturer prices alloy metal tables at a little over two and one-half times the cost of galvanized steel. Thus the following:

	Galvanized Steel Top Dish Tables	*Alloy Metal Top Dish Tables*
Length of Serviceable Life	12 years	35 years
Original Cost	$100.00	$263.00
Cost per Year	8.33	7.50
Value per Dollar of Cost (based on length of life only)	90%	100%

Such figures, however, are far from telling the complete story, for as was the case with work

tables, sanitation and economy of upkeep are actually of more importance. There are few if any places in the kitchen where perfect cleanliness and sanitation are as vital as in the dishwashing department. These can best be assured through the use of a material that does not deteriorate through the action of water, foods, abrasives or cleaners, and which discourages the accumulation of dirt or grease. Such a material serves the double purpose of promoting sanitation and lowering maintenance and repair costs. Corrosion resisting white alloy metal has this important advantage and also does not produce markings on dishes as does galvanized steel. With these elements of value included we get the following summary:

	Galvanized Steel Top	*Noncor. White Alloy Metal Top*
Value per Dollar of Cost (based on length of life only)	90%	100%
Economy of Cleaning and Upkeep	20%	100%
Sanitary Value	20%	100%
Value of Appearance	50%	100%
Average Value per Dollar	45%	100%

Only a few words will be required to dispose of the question of glass *versus* alloy metal cafeteria counter tops. Glass tops may, of course, break or chip at any time and the average rate of breakage is probably equal to a total replacement within seven years. Alloy metal tops will last as long as the counters on which they are used, or about thirty years for a well constructed fixture. Hence the following comparison in which the figures for cost represent prices for a section of the top only:

	Glass Cafeteria Counter Tops	*Noncor. White Alloy Metal Cafeteria Counter Tops*
Length of Serviceable Life	7 years	30 years
Original Cost (section of top only)	$105.00	$180.00
Cost per Year	15.00	6.00
Value per Dollar of Cost (based on length of life only)	40%	100%

Dishwarmers are more difficult to speak of in generalities than are any of the other pieces of equipment mentioned in this article. One reason for this is that all manufacturers do not use the same standards of quality and methods of construction. We shall assume, therefore, that our comparison represents a range of qualities all produced by the same manufacturer. Even this, however, does not entirely solve the problem, for methods of construction vary somewhat according to materials and as all manufacturers do not follow exactly the same policy in this respect the differences in cost between the high and low priced grade are not uniform. For this reason the cost figures in our comparison represent the average between prices supplied by two manufacturers.

The four types of equipment considered are as follows:

a. Galvanized steel body with painted trim and polished steel top. Serviceable life estimated at seventeen years.
b. Blue-black steel body with nickel plated steel trim and polished steel top. Serviceable life estimated at fifteen years.
c. Porcelain enameled steel body with galvanized interior and alloy metal trim and top.
   Serviceable life estimated at twenty years.
d. Noncorrosive white alloy metal body, trim and top. Serviceable life estimated at thirty-five years.

The lengths of life given here are the averages of a number of opinions expressed by experienced operators and engineers.

On the basis of cost *versus* length of life alone, it thus is evident that alloy metal equipment is more economical than either porcelain or blue-black steel and less so than galvanized steel. This advantage for galvanized steel quickly disappears, however, when other factors are noted. Cost of cleaning and upkeep alone are sufficient to turn the balance, for galvanized equipment needs to be painted frequently and if this is neglected the life of the equipment will be shortened. Even with frequent painting the labor of cleaning is considerable. Blue-black steel equipment because of its tendency to rust also requires constant care, although the labor and cost involved are possibly less than for galvanized steel. Porcelain enameled steel warmers are easy to keep clean so far as the exterior is concerned but their galvanized lining presents a problem.

Meeting the Demands of Hygiene

In most of our previous comparisons sanitary properties have been considered as parallel to ease of cleaning, for the harder it is to keep equipment clean the more danger there is of an insanitary condition developing. For warmer and cabinet base equipment it is felt that the sanitary problem is a trifle less severe than with sinks, table tops and steam tables, and the ratings given to galvanized and blue-black steel grades are therefore a little higher than those for economy of upkeep.

While opinions will differ concerning the value of appearance, it will be generally agreed that this is of greater importance for warmers and similar fixtures than for sinks and dish tables. Galvanized equipment is therefore given a value of 30 per cent and blue-black steel, 50 per cent, as compared with 100 per cent for alloy metal fixtures. Porcelain enameled steel makes a handsome fixture, but because of the ease with which it becomes damaged it is rated at 75 per cent.

Taking into consideration all elements of value, the following is a fair general summary:

Value per Dollar	*Galvanized steel body, painted trim, polished steel top*	*Blue-black steel body, N.P. steel trim, polished steel top*	*Porcelain enameled steel body, Alloy Metal trim and top*	*Noncorrosive White Alloy Metal body, trim and top*
of Cost (based on length of life only)	130%	85%	71%	100%
Economy of Cleaning and Upkeep	20%	30%	65%	100%
Sanitary Value	40%	50%	65%	100%
Value of Appearance	30%	50%	75%	100%
Average Value per Dollar	55%	54%	69%	100%

The comparisons given here represent only a few of the more important classes of equipment on which the choice between a range of qualities presents a considerable problem. Enough items are included, however, to make clear the suggested method of valuation. In the light of these data the appraisal of other styles and types of food service equipment should not be difficult.

Applying Comparative Methods

In making this investigation of equipment values the desire has been to offer a method of value comparison that can be applied in a practical way before equipment specifications are formed. The decision as to the grade of equipment to be used often receives less attention than the comparing of prices and the awarding of the contract, yet what to buy is more important than what to pay. The best of purchasing skill is worth little if the competing manufacturers have all figured on a grade of equipment that is not economical to use. With the aid of the comparative data developed through this study the quality to buy can be decided with clearer understanding, thus ensuring the soundness of the investment.

Before applying these comparisons to a particular hospital's buying problem, however, some adjustments may be necessary to suit individual conditions and viewpoints. The statements regarding length of serviceable life are the result of a careful compilation of data that are well vouched for. Comparative percentage ratings for economy of upkeep, sanitary properties and value of appearance are also thought to be fair and conservative, but as they are unavoidably based upon a summary of general evidence rather than upon statistics, they are subject to differences of opinion and interpretation. The main point emphasized is the desirability of employing a systematic method of valuation such as the one outlined here so that purchasing will be guided by logic instead of by guesswork.

Private Group Clinic Seen as Aid in Reducing Illness Costs

That the private group clinic may be one way of reducing the high cost of being sick is suggested by Frederick L. Collins in the *Ladies' Home Journal.*

In such a clinic, six, eight or ten noncompetitive physicians—a diagnostician, a psychiatrist, a surgeon, a nose and throat man, an obstetrician, a general practitioner and others—join forces in a single building or floor, dividing the overhead for equipment, assistants and x-ray plant and also dividing the receipts.

"There is the germ of a big idea in the group clinic," Mr. Collins says. "It is a practical answer to the dreaded demand for state medicine, and it is an antidote to the burdensome cost of widespread specialization.

"That these group clinics, though started as private money making institutions, may be the professional bridge over which the individual doctor may safely pass to a more socialized—I didn't say socialistic or Bolshevistic!—medical practice is shown by the success of the Mayo Clinic, Rochester, Minn., the classic example of clinics of this type."

Mr. Collins also discusses the various hospitals for the patients of moderate means that have recently come into being and praises the work of the Committee on the Costs of Medical Care. Although the committee to date has not proposed a remedy for the high cost of medical care, such a program, says Mr. Collins, will doubtless ask the patient to avoid expensive self-medication; to pay more attention to preventive medicine; to demand less elaborate nursing and hospital care; to save money by insurance or otherwise to meet sickness demands. The program will also ask the doctor to limit his charity work to what he can afford to give; to abandon the sliding scale in favor of a true cost to all; to reduce by group practice or otherwise the present burden of specialization; to get behind the movement for more hospitals and clinics, both in the country and in the city, economically conducted for persons of moderate means.

Gauging the Sanatorium's Future by Its Past and Present

A Paper From the American Hospital Association Meeting

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THE character of the sanatorium has changed markedly in the last quarter of a century. Changes the future may require can best be judged by a consideration of sanatoriums of the past and of those found in the present day.

The earliest attempts at the institutional treatment of tuberculosis were begun in Kent County, England, by the founding in 1791 of the Royal Seabathing Infirmary for Scrofula. This cared only for extrapulmonary cases of tuberculosis and is still in existence. The Royal Hospital for Diseases of the Chest, the first institution devoted exclusively to the care of diseases of the chest, was founded in London in 1814, only a few years after Laënnec had discovered the stethoscope. What has grown to be the largest English institution, the Brompton Hospital for Consumptives, was founded in London in 1841.

The sanatorium of the past was in most instances a place "in the West" where the patient could live and "watch the rest of the world go by." The sanatorium of to-day is fast becoming a special hospital where the patient receives careful scientific active treatment. In the sanatorium of to-morrow the treatment will be even more active and vigorous and a larger number of patients will be restored to economic efficiency. The tuberculous of the community will come in larger numbers and will remain longer, and the danger of infection to children will be practically eliminated.

While the institutional treatment of tuberculosis was begun years before, Brehmer who opened the first successful sanatorium in Gorborsdorf, Silesia, in 1862, and his assistant, Dettweiler, really popularized the institutional treatment of tuberculosis in Europe. In this country the success of the sanatorium treatment of tuberculosis is due largely to Trudeau, who opened his "Little Red Cottage" in the Adirondacks in 1885. This has since grown into the Trudeau Sanatorium, one of the most famous tuberculosis, health and research centers in the world. The sanatorium treatment of tuberculosis as advocated by these three men soon proved itself so worthy of general acceptance that many sanatoriums for the care of early cases were established in various countries all over the world.

In the United States this movement received the whole-hearted support of the National Tuberculosis Association which was founded in 1904 and which had as one of its slogans "No tuberculosis by 1915." According to its progress, tuberculosis was to be banished in a few years by finding the early cases before they had become infectious and dangerous to other people and, through proper institutional treatment and education, restoring them to health. The treatment of that day consisted of forced feedings, a high protein diet, including three quarts of milk and six eggs daily, fresh air while resting in a "cure chair" and graduated exercise. To this was added an intensive course of instruction in good hygiene and in the correct manner of living in the hope that the

individual could continue his treatment outside the sanatorium and thus keep the disease quiescent. It was thought that this plan would break the chain of infection and that in time tuberculosis would automatically disappear.

As tuberculosis was to be eradicated in a few years and as only the early cases who did not need much care were to be hospitalized, any kind of a building with plenty of fresh air where the patient could be hardened was considered satisfactory. Frequently the early sanatorium consisted of an old farmhouse where the patient ate and slept, and a near-by shed, called a "King lean-to" after its originator, Dr. D. N. King. This lean-to opened to the southeast and here the patients spent much of their time in the "cure chair." Originally this was intended for use only during the summer, but with the addition of a heated dressing room with hot and cold water, shower and toilet, for use in the fall, this cure shed was changed to a cure ward where the patient slept as well as rested.

Even with this change the cure ward was still not intended for use in the winter but by common consent it gradually became the accepted standard of sanatorium construction for year around treatment even in climates like Minnesota. Apparently every comfort of the patient was sacrificed for fresh air. Such an institution was really a boarding house with medical supervision to prevent the patient from overdoing. Of course, under such a plan, little could be done for the patient. Cures were few and relapses common. It afforded little if any opportunity for medical study, treatment or research; yet with it man expected to conquer tuberculosis.

Rest Supplements Fresh Air

Experience soon proved that most of the so-called "early cases" were really advanced infectious cases which were dangerous to their communities. They had already progressed beyond the condition for which this program was planned. Furthermore, many were ill and required just as much bedside care as did those ill with any other disease. In order to meet this condition a limited number of infirmary beds were added to the sanatorium's facilities. As time went on, however, rest rather than fresh air became recognized as the backbone of the treatment of tuberculosis, even in the absence of toxemia. Later, tuberculosis came to be recognized as a general disease with local manifestations, so that successful treatment of the local condition depended upon treatment of the general condition as well. Then the fact became apparent that tuberculosis could not be separated from the body in which it exists, and so the medical work of the sanatorium was extended.

Under the recognition of these several principles the character of sanatoriums has gradually changed. The institutions built to-day are really special hospitals so arranged that from 85 to 100 per cent of their entire capacity can be used for infirmary beds. They are prepared to diagnose and treat tuberculosis at any age, in any stage and in any organ of the body, as well as any and all of the complications, tuberculous or nontuberculous, that may develop to impair the general health of the patient and retard his recovery.

A Special Hospital

This program requires facilities for prolonged bed rest; for chest surgery in pulmonary tuberculosis; for orthopedic surgery; for pregnancy; for heliotherapy; for a thorough gastro-intestinal, urological and proctological study and for a complete x-ray and laboratory study and diagnosis. Facilities are also provided for the correction of upper respiratory tract and mouth infections and the host of other nontuberculous conditions that increase the odds against the tuberculous patient. If these conditions are corrected while he is in the sanatorium his period of invalidism will be shortened materially.

Thus the modern sanatorium is in truth a special hospital and compares favorably in construction and equipment with the general hospital. The newer institutions are to be found near the larger centers of population where a consulting staff in the various specialties is available. For this reason the study of the body is much more thorough than it otherwise could be. This, together with the more intensive use of bed rest, of collapse therapy, some form of which 34.8 per cent of the pulmonary patients now in residence at Glen Lake Sanatorium, Oak Terrace, Minn., have received, and other measures that such modern facilities permit, has proved that many cases formerly considered hopeless have now a real chance of recovery. This is illustrated by the change in the discharged condition of our far advanced patients during the last five years. In 1925, 20 per cent were improved or better than improved; in 1929 this number increased to 42.5 per cent. In 1925, 80 per cent of the advanced cases were unimproved or dead; four years later this had decreased to 57.5 per cent.

In addition to the medical features mentioned there are certain nonmedical activities that are indispensable. These include dietetics, occupational therapy, a well equipped library and a trained social service department. These are of special importance in a sanatorium because of the prolonged period of hospitalization the average patient undergoes. The average length of stay of all cases discharged from Glen Lake Sanatorium in

1929 was a fraction over twenty-one months. Hence the need of a satisfactory diet is apparent. I will refer those who are interested in some of its various problems to "Food Complaints in Sanatoria," by H. L. Barnes, *Journal of Outdoor Life*, Volume 15, No. 1, page 10. Medically, the diabetic with tuberculosis needs as carefully supervised a diet as does the diabetic without tuberculosis. A sanatorium, therefore, needs an efficiently planned dietetic department staffed by trained dietitians.

Similarly, many social problems will arise during the period of hospitalization which if they are sympathetically and promptly cared for by the social service department will do much towards promoting the mental content of the patient. Occupational therapy, with its diversional and instructive features, is an important activity, since it aids the patient in making the mental adjustment necessary for a prolonged period of hospitalization, and through the sale of the articles made by the patient it serves him also as a source of income. For the average sick person, the knowledge that he has an earning capacity even though he is ill, increases his self-respect and his will to live and makes institutional life more tolerable. Reading, since it employs his mind with thoughts other than those of his own problem and entails a minimal expenditure of physical energy, affords for him an ideal recreation. A library, therefore, is a necessity in a sanatorium. Many consider this a form of occupational therapy. Many sanatoriums have provided amusement and recreation halls for the entertainment of their patients. At first, these were often so situated that only the ambulant patients could use them. Now they are near the infirmary so that the bed patients, who really need them more than do the ambulant patients, can be wheeled there in their beds, litters or chairs. Thus, the amusement hall in the modern sanatorium serves the entire patient population.

Lowering the Chances of Infection

The modern sanatorium in addition to acting as a curative institution is reducing the opportunities of infection of the rest of the population by removing a large proportion of the consumptives from active life and segregating them for months and sometimes for years. Many claim that this has been a big factor in the reduction of the tuberculosis death rate. But even with the declining rate, tuberculosis is the chief cause of death in the age period between fifteen and forty-five years, which are the most productive in man's life; so there is still much for the sanatorium of the future to do.

The early sanatoriums felt that their job began when their patients entered the institution and ended when they were discharged. Postsanatorium care, that is, the careful, clinical supervision during the transition from sanatorium to industry of the patient who did not have a private physician, was unthought of or was left to other agencies. Such a plan by neglecting the patient after his discharge made no attempt to conserve the investment the community had made in the individual through his prolonged period of hospitalization. To-day no well organized county or city sanatorium considers its job finished unless it has an outpatient department to minimize the danger of relapses through the clinical care of the dispensary case during this critical period.

Keeping in Touch With Patients

Many sanatoriums are attempting to carry this a step further by providing uninterrupted medical supervision of these patients before admission, during residence and after discharge. Such a uniform policy of medical attention can only promote more efficient service and should do much to protect the investment the community has made while these individuals are hospitalized.

The factors that assure the popularity of the modern sanatorium, such as its location, its modern construction and equipment, its medical and nursing facilities, its dietary development, its social service program and its diversional activities—occupational therapy, reading and other forms of amusements—will all be carried to higher degrees of efficiency in the future than they are at the present time.

As a result of this increased care and treatment, a larger percentage of our honest prospects will be returned to industry. As the general public becomes aware of this improvement in the sanatorium, more persons will come for treatment and will be willing to remain longer than they do now. This will remove a larger number of the open cases from the community over a longer period of time, thus reducing still further the opportunities of infection for the rest of the community.

As the sanatoriums increase in medical and surgical efficiency they will serve more and more as diagnostic centers where border line cases can be studied over as long a period of time as may be necessary. Modern sanatoriums where the stay of the patient is measured in months rather than in days offer an excellent opportunity for medical research, which is the taproot of scientific progress. Such institutions offer excellent opportunities for the training of medical and nursing students in the study and treatment of tuberculosis.

In addition to this, the sanatoriums of the future will make larger provision for the care of the tuberculous child than they have in the past. This

will include provision for a more complete educational program while the child is hospitalized, as well as for a more complete medical service during the same period. Von Behring in the early part of this century claimed that adult tuberculosis "is the end of the song sung to the child in the cradle," or, in other words, that adult tuberculosis develops in an individual who has previously been infected with the tubercle bacillus. Opie, more recently, claims that adult tuberculosis never develops except upon the background of the childhood type of tuberculosis. Rathburn claims that from 3 to 4 per cent of the teen age children will have demonstrable tuberculosis and that from this group will come about 75 per cent of the adult tuberculosis. One cannot but wonder whether the teen age period is not the time to hospitalize the individual with latent tuberculosis and to institute the most rigid type of treatment available.

A Story With a Moral

The following autobiographical story of a patient at Glen Lake Sanatorium illustrates the point perfectly: "When I was very young, twenty years or more ago, the world outside my doorway spelled adventure and each person who passed was a potential hero. I wished that each one would walk on the path that ran close to my home and not always across the street. I had not any idea it was because of the big sister who told me fairy tales and bound up my bruises and tried to sing lovely songs for me, but who could not because she coughed so hard. I thought the children were playing a fascinating game when they ran by holding their noses with their hands, and I longed for the day when mother would let me play in the street with them. But she never did. Then big sister died, and in a very short while another sister became sick. But mother, fearing for us all, took her away from home until within a few weeks of her death. When the third sister fell ill, we were kept out of her tent and sent away to play outside. She died, too, four years after big sister.

"Every summer after big sister's death, I was sent away to the farm to get fresh air and drink milk fresh from the cows because some day I might catch consumption and eight years later I did. Then the old neighbors remembered my three sisters and shook their heads, but their gloomy prediction never came true, for the influence of the sanatorium movement that had started many years ago had reached my community and I went to a sanatorium for treatment. I did not die but my recovery took six years from my life just after I had finished my nurse's training and was on the threshold of active interesting competitive life."

The circumstances of this case were probably unavoidable because of the lack of knowledge of the facts concerning the prevention and treatment of tuberculosis at that date. With our increased knowledge, should not the issue be faced in childhood or in the teen age, and should not the individual be sent to a sanatorium where careful and intensive treatment twenty-four hours a day can be given, and where both mental and physical health can be looked after? Some claim that hospitalizing people of this age is too expensive. Is it? So far as the expense is concerned, six teen age individuals could have been hospitalized for one year at certainly no greater, and at probably less expense that it had cost to hospitalize this young woman for six years. Some claim further that hospitalizing these individuals is not necessary; that all that is required is to break the chain of infection and supervise the individual; that when this is done all will be well. The chain of infection was broken in this case; yet not until eight years after the death of the third sister did adult tuberculosis develop. Possibly if the issue had been faced in childhood, many of the heartaches and the sorrow of crushed aspirations of young adult life could have been avoided and the length of treatment reduced by several years. This is without doubt, one of the greatest future possibilities in the sanatorium movement.

An Educational Program

When the case of childhood tuberculosis is discovered, the source of his infection may frequently be found in an adult associate whose tuberculosis has not developed far enough to make him aware of his condition. If treatment of both the child and the adult is instituted immediately, the aim of the National Tuberculosis Association—the control of the early case either in childhood or adult life—will have been accomplished. Thus the day when tuberculosis is no longer a major health problem will be brought much nearer.

The sanatoriums by providing such diversional activities as occupational therapy and an adequate library, have done much to break the monotony of cure taking, thereby enabling the individual to carry on. But I believe that in the future they will go further and provide the same form of positive mental training for the older individual as is now provided for the child.

Most institutions for tuberculous or infected children have admitted by their adoption of a systematic educational program that the restoration of the sick body of the child without at the same time training his mind is, to say the least, a shortsighted policy. Shall we not admit that the same principle holds true for the teen age individ-

ual or the young adult and shall we not in the future provide either an academic or a vocational education for him? Can you think of any better way of counteracting the deadening influence of the months of inactive life than by providing some form of positive mental training? During much of the period of hospitalization the patients are in comparatively good health and are merely waiting for a tuberculous lesion to scar over and heal. They have no engagements to keep, no outside activities to distract them, they are looking eagerly for something to do. We must provide something for them. What shall it be—a diversional or an educational program?

A diversional program, while it may enable the patient to stick to the cure long enough to gain a satisfactory physical result, will tend except in rare instances to make him an idler. To restore a man physically and to fail to conserve his work habit is a mistake. An educational program, either academic or vocational, on the other hand, will tend to conserve and foster the work habit. The patient, on leaving an institution where such a program is provided, will be as well fitted mentally to meet the demands of the economic world as his capabilities and the resources of the community will permit. His physical condition, will for a time at least, constitute a handicap that must be offset by increased training if he is to compete successfully with his fellow men. If this training is not given in the sanatorium it will have to be given after his discharge. Therefore the failure to provide such a program in the sanatorium is a waste of time and opportunity. This is our next step at Glen Lake Sanatorium and at present we are working with the Minneapolis Board of Education, the state division of reeducation and the tuberculosis association for a cooperative educational program that can be given in the sanatorium.

Restoring the Patient to "Life"

While the sanatorium of the past was in most instances a place "in the West" where the consumptive could live and "watch the rest of the world go by," there was here and there an institution that was really a beacon light to the future. The sanatoriums of today are fast becoming special hospitals where the patients receive careful scientific active treatment. In those of to-morrow the treatment will be even more active and vigorous and a larger number of the patients will be restored to economic efficiency. This will result in a more general use of these institutions by the medical and nursing schools in the training of their students and a keener interest will grow up in medical research.

The tuberculous of the community will come to the sanatoriums in larger numbers and will remain longer, and there will be a still greater diminution of opportunities for the infection of children. The effect of this chain of circumstances upon the future death rate will be compounded in generations to come. Last but not least, the sanatoriums will provide an educational program adapted to the physical condition, the previous training, the mental capacity and the economic background of each patient, so that when he leaves he will be fitted mentally as well as physically to meet the demands of the outside world.

County and Municipal Hospitals Are Not Overlooked by Legislatures

Five laws that concerned county and municipal hospitals only were passed during 1930, out of eight that were considered, it is pointed out in a survey by William C. Woodward and Thomas V. McDavitt, bureau of legal medicine and legislation, American Medical Association. The survey appears in the *American Medical Association Bulletin.*

A Virginia bill authorized an appropriation of $100,000 to aid hospitals maintained jointly by two or more counties or cities which conform to certain requirements of the state department of health and care for Virginia citizens who are not residents of the counties or cities jointly maintaining the hospitals. A Kentucky bill authorizes cities of the first class to construct public hospitals. Another Kentucky law permits tuberculosis hospitals in counties having cities of the first class to accept donations for hospital purposes.

Three bills did not become laws. New Jersey killed a bill to authorize any city of the first class to expend not to exceed $250,000 annually for the treatment and care of indigent residents who are patients in any incorporated hospital in the city. The governor of Kentucky vetoed two bills: one to allow a county whose county seat is a city of the fifth or sixth class to enter into a contract for the treatment of the indigent sick with an adjacent county having a community hospital, and one that proposed to establish in the state board of health a bureau of medical education and hospitals and to authorize the state board of health to refund to any county or community that in operating a community hospital conforms to rules and regulations laid down by the board, a sum equal to 10 per cent of the amount actually expended in operating the hospital and to appropriate fifty cents a day for each free patient treated in such a hospital.

Centralizing Nursing Equipment —A Successful Experiment

By VIRGINIA HARRELL, R.N.
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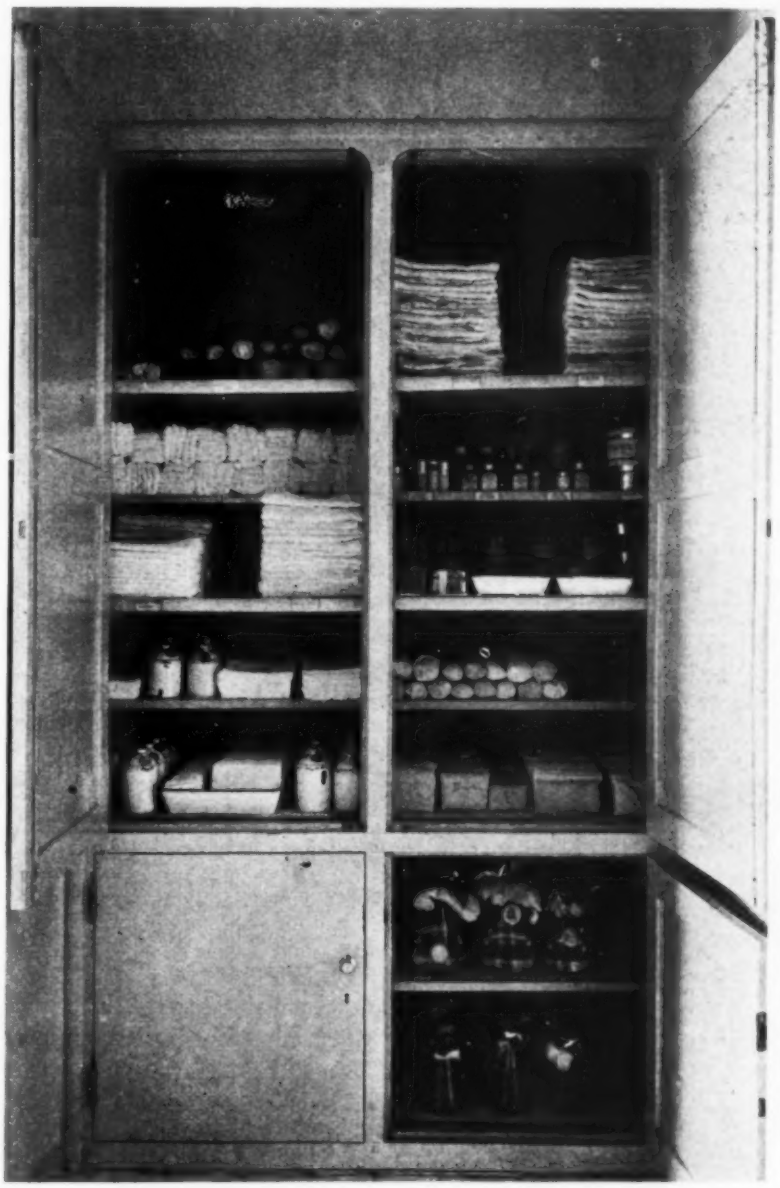
IN 1926 the American Hospital of Paris opened the new memorial building of 120 beds. Each unit was furnished with complete equipment for all nursing procedures, a tray for each treatment, a complete assortment of needles and a collection of gloves for each surgeon. It was complete, but complicated. With seven floors equipped on this plan a considerable waste of time and materials was unavoidable.

Each morning the senior nurse was confronted with the task of checking over every treatment tray and counting the various articles needed in the day's work. Too often the trays were found lacking in the thing most necessary. Perhaps the lavage tray would check as to articles but the rubber tubing might show signs of deterioration. Accounting for equipment was a problem. There was always the mysterious disappearance of supplies. Moreover there was a lack of uniformity in nursing procedures, which seemed unavoidable with special nurses from the four corners of the earth. In the crisis of the patient's illness, when he most appreciated the undivided attention of the nurse, she often had to leave the bedside for the preparation and rearrangement of trays for his treatments.



In the cupboards in the central supply room the nurses find materials for all kinds of treatments.

To obviate these difficulties, the centralization of equipment was decided on.

There had been planned a special operating suite for cesarean sections, which was rarely used. These rooms were furnished with autoclaves, an instrument sterilizer, sterile water apparatus and two sinks with hot and cold water. This seemed the ideal place for a central supply room.

The hospital carpenter built the cupboards and arranged the necessary shelves and drawer space. The paint shop refinished an old desk and table. The furniture, therefore, represented small expense. The sewing room contrib-

Considerable waste of time and materials is saved the hospital by having its supplies centralized in this room.

uted the linen containers for the rubber tubes. These were made to hang flat on the wall, which has proved a good method for their conservation. Gradually the treatment trays were collected from the floors. It was found by centralizing the equipment that only a third of the original material was needed to give uniform service to the entire hospital.

The operating room was soon relieved of the sterilization and distribution of supplies to the floors, the out-patient clinics and the obstetrical department. The nurses are now going to the central supply room for materials for all kinds of treatments. They find everything from eye cups to flannel stupes, all ready for use. Special pieces of equipment, such as the subcutaneous oxygen machine, the oxygen tent and the spinal manometer, are there. The sterile goods are always freshly sterilized, the needles are in perfect condition and all equipment is uniform and flawless. Everything sees constant service and is replaced as soon as it is worn out.

A simple system of signing in a record book when materials are borrowed and returned accounts for the equipment. It is expected that everything will be returned clean within twenty-four hours.

A graduate nurse is in charge of the department. She consults with the administrative office on the subject of buying equipment and materials. By her constant observation she is able to detect waste of gauze and cotton or inferiority in rubber goods or instruments. She has been able to point out new methods of conservation. Her responsibility is the nursing equipment, from the hypodermic needles to the oxygen tanks. This nurse supervises the lay workers in the supply room. She teaches the students the actual cost of hospital supplies, as well as the intelligent care of equipment. The student nurses spend four weeks here as an introduction to their operating room experience. This compensates for the lack of practice they have had on the floors in arranging and caring for equipment. The night supervisor is responsible for this department at night.

After a year's experience with a centralized nursing equipment service, we find the experiment a success. We have gained from both the students and the special nurses a better understanding of and cooperation in our conservation efforts, as well as a more uniform method of nursing procedures. The doctors appreciate the efficiency of well kept equipment.

The accounting office shows a saving of approximately $600 a year for gauze alone, although both the daily average of patients and the number of surgical operations have been higher than in previous years. Best of all is the satisfaction the authorities feel in knowing that all the nursing equipment of the entire hospital is at all times in perfect condition.

Patients' Fees and Their Relation to Capital Investment*

By C. R. ROREM
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WHAT relation do patients' fees bear to the operating costs of the hospital? How far should fixed charges be considered in determining fees? How many patients pay full cost? These and other questions are of primary importance in considering the relationship of capital investment (fixed charges) to patients' fees and to community support.

Hospital patients are sometimes classified as free, part-pay and pay with respect to the fees paid for services received by them. The classification is not always based upon a careful definition of the terms and has resulted in much difficulty in understanding certain problems of hospital finance. The "free" classification applies to most government patients, particularly those in the neuropsychiatric and tuberculosis hospitals. There are approximately 500,000 patients continually in the various government hospitals, based upon 85 per cent occupancy of those registered in 1928. This would mean that there are more than 180,000,000 patient days of care rendered each year which might be described more or less accurately as "free."

Of the 76 local government hospitals in the State of New York in 1927 which reported a total of 4,800,000 days of care to the State Board of Charities, only 347,000 or 7½ per cent of the days of care were rendered to patients who paid something toward the cost of this service. The total operating costs were $16,000,000 of which $871,000, or about 5½ per cent, were recovered through patients' fees.

Classifying Patients

It may be assumed that all of the approximately 75,000 patients' beds in proprietary hospitals are intended for full-pay patients only, whose total fees would be sufficient to recover fixed charges and operating costs, although there are instances where proprietary hospitals render medical care for which they are not fully reimbursed. Assuming that all proprietary hospitals are 70 per cent occupied throughout the year the total number of patient days of service rendered is about 19,000,000 annually.

Between the so-called "full-pay" class and the "free" class is a large group of patients who as a class must be given "part-pay" status because they do not pay amounts sufficiently large to recover the fixed charges and operating costs of the hospital. These patients comprise the beneficiaries of the nonprofit association hospitals, which have an approximate capacity of 250,000 beds. At a 70 per cent rate of occupancy in these hospitals the total number of patient days of care yearly would be about 71,000,000. Although nonprofit association hospitals usually serve groups of patients that represent each of the three classes —full-pay, part-pay and free—all of their patients as a group must be regarded as part-pay in view of the general practice of excluding fixed charges from the cost of hospitalization.

Patients' Fees and Operating Costs

Hospital administrators have almost unanimously assumed that the total costs of rendering hospital care were merely the operating costs represented by salaries and wages to employees, supplies consumed during the fiscal period and services purchased from outside vendors. They have, almost without exception, excluded from their reports of costs any mention of interest and depreciation on the invested capital. It should not be assumed, however, that fixed charges are not "costs" of hospitalization merely because they are separately accounted for, or ignored as the case may be, and because the land and buildings of the hospital, which represent its capital investment, are provided without a view to business earnings. Fixed charges must be included as costs of hospitalization from the standpoint of the community, because the community ultimately has to pay them. But an individual hospital may, as a practical expedient, arbitrarily exclude the item from its concept of operating costs.

*Adapted by permission of the publishers from Chapter 16 of a forthcoming book, "The Public's Investment in Hospitals" by C. R. Rorem, the University of Chicago Press, 1930.

Since at the present time patients in the nonprofit association hospitals of many communities are not paying amounts equal to hospital operating costs, even excluding fixed charges, what part of the operating costs should in justice be borne by the general public?

The patients in hospitals that participate in the distribution of the United Hospital Fund of New York pay but two-thirds of the current expense of the hospitals, excluding interest and depreciation. The other one-third is provided through earnings of invested capital or through gifts from the general public. These estimates are based on the 1928 statistical sheet, which reports that in-patients and out-patients provided $16,817,178 of the total operating expenditure, amounting to $24,713,879. There were 57 hospitals included in this group.

In the sixty-second annual report of the New York State Board of Charities, 206 hospitals, some of them in New York City, reported total maintenance expenses of $37,946,492 for the year ending June 30, 1928. To meet these costs, $23,420,965 was received from patients. In Philadelphia, in 1928, the patients of 52 nonprofit association hospitals paid 59 per cent of the operating costs.[1] The Cleveland Welfare Federation in 1927 granted funds to 14 hospitals, the patients of which paid 62 per cent of the total operating costs.

For the year 1927, for 147 hospitals in 39 cities in the United States where community chests grant funds to hospitals, patients paid 68½ per cent of the total operating costs, according to data secured from the Association of Community Chests and Councils. In Wichita, Kan., the receipts from patients were 95 per cent for 5 hospitals in 1928; in Columbus, Ohio, they were 77 per cent for 3 hospitals; in Lancaster, Pa., they were 76 per cent for 3 hospitals. The last three statements were secured from the joint committee, Association of Community Chests and Councils, and the local community research committee of the University of Chicago.

The Pay Status of Individual Patients

Hospital service is not homogeneous, and the various types of service are not evenly distributed among the individual patients. Individual patients have been classed by different hospitals as pay or part-pay on one of two bases: (1) whether or not they pay amounts equal to the established rates for services received, and (2) whether or not their average payments per day of care exceed the average cost per patient day for the entire services during the fiscal period.

[1] Emerson, Haven, Philadelphia Hospital and Health Survey, p. 626.

The first basis would be an admirable one if hospital charges were established with a definite relation to the presumed costs of providing the various services. As is well known, most institutions make but slight attempt to relate charges for their services to the costs incurred in rendering them. It is generally assumed that private room rates exceed cost, as do the fees for special diagnosis and therapy.

The second basis is subject to a similar type of limitation, namely, that the total bills paid by a patient, whether at established rates or less, are not directly proportionate to his days of bed care. Some patients require extensive special services, the total fees for which may exceed those for board and room. The costs incurred in behalf of a patient and the payments made by him, often bear little relation to his stay in the hospital. Consequently it is irrelevant to compare his average daily payments with daily cost for all classes of patients. The pay status of an individual patient must, therefore, be related to the costs incurred in his behalf, or to the average daily cost for a homogeneous group, of which he is a part.

When the Rule Is Modified

The general rule that a patient is part-pay when his average daily payment is less than the cost per patient day is at times modified in practice. Some hospitals have recognized that individual patients who receive none of the special diagnostic or therapeutic services might be in fact full-pay patients, even though their payments to the hospital were less than the average per capita costs. Accordingly, the rule is arbitrarily followed that patients hospitalized in private rooms will always be considered "full-pay." Others have adopted a converse rule, namely, that all patients housed in certain other types of accommodations will be reported as part-pay patients regardless of the amounts paid by them.

These expedients sometimes avoid, and sometimes lead to, absurd classifications of individual patients. For example, in a Midwestern hospital with a cost per patient day of approximately $9, not including fixed charges, two patients were admitted to the same wing of the hospital, one in an $8 private room and the other in a bed in a three-bed room at a rate of $5.50 per day. The first patient had a mild cold and had come to the hospital for a rest and to avoid inconveniencing his family. During his stay he required no services for which extra charges were made, and at the time of his discharge he was assessed $8 a day, which was less than the average cost per patient day in this institution. Had it not been for the

custom in this hospital of reporting all private room patients as full-pay, he would have been reported as a part-pay patient. The patient in the three-bed room was admitted for special observation and diagnosis because of certain obscure internal disorders. During his four days of hospitalization, numerous x-ray photographs were taken and other special services rendered, the fees for which amounted to $120. The total bill was $142, an average of $25 per day of inpatient service. This patient was reported to the board of trustees as a part-pay patient, in accord with the policy of putting all three-bed room patients into the part-pay category. As a matter of fact, this patient's stay resulted in a substantial net profit to the hospital.

As a matter of fact, many hospitals have fixed room rates and other charges for private patients so that they pay considerably more than the cost of operation. Some administrators set such rates with the definite intention of making up on the private patients the loss that results from the care of part-pay and free patients. Thus in a way these private patients are forced to make involuntary contributions to the charitable service of the hospital. It seems unfair to tax those already burdened with the expenses of their own illnesses in this way. It would be just as fair to levy contributions on the well members of the community for the maintenance of the sick.

It would be more logical for fixed charges to be included in determining private patients' rates since it is a fact that the special accommodations designed for them increase considerably the capital investment. If private patients felt that their rates were higher because they included their pro rata share of such costs they would be much more ready to pay willingly than if they felt that they were being assessed more in order to reduce the charges for part-pay and free patients.

The Basis of Community Support

The determination of part-pay status lies at the foundation of much community support for hospital care to patients in nonprofit association hospitals. The nonprofit association hospitals accept certain patients at rates that are below those necessary to recover the proportionate operating costs of the services to these groups. The community is then asked to provide the difference by voluntary contributions. In communities where chests or federations distribute charity funds, the hospitals are usually required to render a detailed account of the losses from these part-pay services, as well as from certain amounts of free work. For hospitals which do not receive community support in proportion to reported part-pay service, it is often considered desirable to publish these facts to enlist general sympathy and possibly to encourage financial contributions from the public.

The Association of Community Chests and Councils, cooperating with the local community research bureau of the University of Chicago, attempted in 1928 to accumulate data concerning part-pay service in hospitals in cities cooperating in the "Registration of Social Statistics." Upon consulting the American Hospital Association, they at first decided to base their registration upon the relation of a patient's payments to the average cost per patient day in the hospital where he was served. Two conditions, however, caused them to base their classification of part-pay patients upon the relation between a patient's payments and the established rates for the various services which he received. One was that in only two states was the cost per day basis used as a standard. The other was the fact that no uniformity was encountered in calculating the cost per patient day against which the patient's payment was to be measured. The comparison of the patient's payment with the established rate was therefore accepted as the basis.

Two Significant Advantages

The measurement and record of fixed charges, therefore, provide the basis for two significant advantages in hospital financing. In the first place, it makes possible the inclusion of fixed charges in the establishment of fees for services rendered to well-to-do patients who may be willing and glad to pay higher rates when they realize that in so doing they are paying no more than the whole costs of their services. Such a policy not only provides additional funds for hospital needs but also commends itself as equitable. In the second place, an analysis of fixed charges sets forth clearly the need for public support, and may, therefore, result in voluntary contributions to meet either capital or current expenditures. Well-to-do citizens, both those who have and those who have not made use of the hospital's facilities, may in this way assume a share of public responsibility for patients whose fees are less than the total costs of the services they receive.

Whether or not fixed charges should be included in the costs to be borne by individuals or groups of patients is not a question of accounting but one of social policy. Patients' fees and community support combine to provide funds for both capital and current needs. The extent to which organized community support has provided for capital investment and the recovery of fixed charges has been discussed in other sections of the study on which this article is based.

A Study of Costs and Personnel in General Hospitals

NEARLY one-half of the hospital dollar goes for salaries, nearly one-third goes for the dietary department and a little more than one-sixteenth goes for plant maintenance, according to a study of 61 general hospitals recently completed by Dr. Emil Frankel, director of research, State Department of Institutions and Agencies, Trenton, N. J. The study covered hospitals as follows: New Jersey, 23; Pennsylvania, 19; New York, 7; Maryland, 5; Massachusetts, 3; District of Columbia, 3, and Maine, 1.

These 61 general hospitals with a total bed capacity of 16,984 reported $24,490,666 as the current maintenance expenditures for 1929, with $11,510,613 expended for salaries, $7,102,293 for the dietary department and $1,469,439 for plant maintenance. Expenditures for dietary departments include cost of food, supplies and salaries. Expenditures for plant maintenance include cost of buildings, grounds and replacements of scientific apparatus.

Costs Lower in Large Hospitals

That a definite relationship exists between the size of a hospital and its per capita cost is proved by the cost figures for the different sizes of hospitals. In general the small hospitals had higher costs for all three of the chief items surveyed than did the large hospitals. The 61 hospitals are divided as follows in respect to size: 451 beds and over, 4; 351-450 beds, 7; 251-350 beds, 24; 151-250 beds, 16; 150 beds and under, 10. The average daily per capita costs of the different sized groups are given in Table I. For the entire group, average daily per capita cost for current maintenance was $5.71; for total salaries, $2.66; for dietary department, $1.63; for plant maintenance, $0.31. Because large hospitals may spread their overhead over a greater number of patient days of service, their costs are lower than those of small hospitals.

Expressed in percentages, expenditures for salaries constituted 47 per cent of the total expenditures; dietary department, 29 per cent; plant maintenance, 6 per cent. Thirty-three of the hospitals had an average daily per capita cost for salaries of between $2 and $3; eight, less than $2, sixteen, between $3 and $4; two, $4 or more. Forty-six hospitals had an average daily per capita cost for dietary of between $1 and $2; two, less than $1; eight, between $2 and $2.50; three, $2.50 or more.

Twenty-nine hospitals had an average daily cost for plant maintenance of between $0.20 and $0.40; ten, less than $0.20; eleven, between $0.40 and $0.50; and four, $0.50 or more. Thirty-six hospitals had an average daily per capita cost for all expenses of between $5 and $7; ten, between $4 and $5; six, less than $4; seven, between $7 and $8; two, $8 or more. It is interesting to note that the average daily per capita cost, $5.71, for all 61 hospitals is slightly higher than previous averages secured in nationwide studies, about $5.30. Here it is possible that the cost was raised by the lowered occupancy during 1929 and that the lowered occupancy in turn was brought about by business depression.

TABLE I—AVERAGE DAILY PER CAPITA COSTS

Sizes of Hospitals	*Total*	*Salary*	*Dietary*	*Plant Maintenance*
Total—All Hospitals	$5.71	$2.66	$1.63	$0.31
451 beds and more	5.57	2.36	1.51	0.37
351-450 beds	5.52	2.65	1.66	0.25
251-350 beds	5.70	2.72	1.67	0.28
151-250 beds	5.85	2.77	1.59	0.36
150 beds and less	6.31	2.73	1.81	0.41

Data concerning personnel of the institutions were collected along with the financial statistics. The 61 hospitals included in the study reported having 668 interns, 1,711 graduate nurses (including executive nurses), 5,558 student nurses (including probationers), and 9,534 employees (not including nurses). Relating the average daily number of patients (arrived at by dividing the number of patient days for the year by 365) to the personnel in all hospitals reporting gives the following results:

17.5 patients per intern
6.9 patients per graduate nurse
2.1 patients per student nurse
1.2 patients per employee.

The complete personnel data for sizes of hospitals are summarized in Table II.

Recent emphasis upon graduate nursing service gives special interest to the individual hospital ratios of daily average number of patients per graduate nurse, as follows:

Daily Average Number of Patients per Graduate Nurse:	*Number of Hospitals:*
2	2
3	1
4	11
5	6
6	6
7	12
8	5
9	7
10	2
11	2
12	----
13	4
14	1
15	----
16	1
17	----
18	1

Daily average number of patients per student nurse was 2.1, with the following distribution: less than 1.5, 7 hospitals; 1.5-1.9, 18 hospitals; 2.0-2.4, 19 hospitals; 2.5-2.9, 12 hospitals; 3.0 or more, 4 hospitals. Daily average number of patients per intern was 17.5, with the following distribution: less than 15, 9 hospitals; 15-19, 10 hospitals; 20-24, 12 hospitals; 25-29, 14 hospitals; 30-34, 8 hospitals; 35 or more, 7 hospitals. Daily average number of patients per employee was 1.2, with the following distribution: less than 1, 11 hospitals; 1.0-1.4, 26 hospitals; 1.5-1.9, 19 hospitals; 2.0 or more, 5 hospitals.

TABLE II—AVERAGE DAILY NUMBER OF PATIENTS

Sizes of Hospitals	*Patients per Intern*	*Patients per Graduate Nurse*	*Patients per Student Nurse*	*Patients per Employee*
Total—All Hospitals	17.5	6.9	2.1	1.2
451 beds and more	12.6	8.6	2.4	1.2
351-450 beds	16.9	8.2	2.4	1.1
251-350 beds	17.6	6.1	2.0	1.2
151-250 beds	21.9	6.9	2.1	1.2
150 beds and less	31.4	5.7	1.8	1.4

Comparison of these ratios with those discussed by Doctor MacEachern[1] will prove valuable to administrators especially interested in this problem. Although there are differences in the methods of stating the ratios, the general averages agree as well as any averages can agree.

[1] MacEachern, Malcolm T., Factors That Influence Ratio of Personnel to Patients, THE MODERN HOSPITAL, Oct., 1930, p. 73.

Is Fine Table Linen Harmed by Washing in Hard Water?

An answer to this question has been requested from THE MODERN HOSPITAL by the superintendent of an institution in which the water supply is of moderate degree of hardness, that is, eight grains. In this institution, it has been found that while table linen after having been washed in this water upon ironing is crisp and presents a good appearance, there is some evidence of deterioration of this linen which cannot be wholly attributed to the length of use.

It is expensive to wash table and bed linens in hard water. Not only is this true from the standpoint of excessive use and waste of soap but this practice is not conducive to long life in linens. Every laundry of size should have a water softener and linens, particularly those used on the table, should be washed in water which has been subjected to a softening process. Crispness of linens can be much more economically produced by the use of a high grade starch and it is suggested to the superintendent asking this question that an endeavor be made to secure soft water and that he rely upon starch to produce the desirable crispness or stiffness of table cloths and napkins. To do otherwise is both expensive from the standpoint of deterioration of linens and conducive to extravagance in the use of laundry supplies.

Hospital Not Liable for Surgeon's Negligence, Court Rules

A hospital may not be held liable for the negligence of a staff surgeon in performing an operation, the Supreme Court of North Carolina has ruled, in cases in which the surgeon was employed privately. Being engaged by the patient, the court held, the surgeon, though a member of the staff and a stockholder, could not be the agent of the hospital.

"When the hospital undertakes only to furnish the facilities for the operation or for the treatment of the patient," according to the opinion of Judge Connor, "and the patient selects and employs the surgeon who operates on or the physician who treats the patient, the hospital is not liable for damages resulting solely from the negligence of the surgeon or physician."

The court reversed a judgment against the hospital for alleged negligence of a surgeon in neglecting to remove packing in the wounds made during an operation for appendicitis.

Editorials

Accomplishing More With What We Have

WHEN the operating room stands idle, when there is a lull in the laboratory or when the x-ray machines are in disuse, it means a distinct dollars and cents loss to the hospital. It is fully realized that the operating room cannot be constantly in use from eight in the morning until midnight and that other departments cannot always be active, but in these times when we must economize we must give serious thought to the further utilization of our existing facilities.

Too often do administrators think of economy in terms of fewer workers, less food or cheaper products. This is always a short-sighted view and over a period of years proves to be an expense rather than a saving. On the other hand, some study of your own plant will bring forth the startling fact that various departments are not one hundred per cent efficient or even near it. Machinery and apparatus purchased many years ago for the express purpose of effecting economies have in the "fat years" fallen into disuse.

Supervision of the physical therapy and the deep therapy departments, the x-ray laboratory, the laundries, the sterilizing rooms and the operating suites, has been neglected and practices in these places have become lax. This is the time to tighten up, to see that all of the mechanical aids are actually in use and to their fullest extent. A thorough study of the existing facilities in your institution and further utilization of these facilities will greatly help in making both ends meet.

During 1931 THE MODERN HOSPITAL hopes to present many articles to advance this idea, and to show to hospital superintendents as many uses as possible of the entire physical plant.

The International Leaven

THE first volume of the new international hospital review, *Nosokomeion* (from the Greek, meaning "Hospital" and representing an effort to strike a literary compromise between the English, French and German) contains a keenly analytical and sympathetic comparison between American and European hospitals by a thoughtful observer, Dr. W. H. Mansholt, director, General Hospital, Groningen, Holland. Doctor Mansholt's article is called "What Can European and American Hospitals Learn From Each Other?" His observations were made in the course of his visit to these shores at the time of the First International Hospital Congress last year and are placed against a kind of philosophic background that ought to be more in evidence in hospital life.

Scholarly comparisons are here made of the various major divisions of hospital work, such as construction, equipment, organization and administration. The professional departments—medical, nursing, dietetic and social service—and the executive departments—purchasing, equipment and housekeeping—are measured with a metaphoric yardstick of international manufacture. As one would expect, the chief point of the author's interest is "the public's investment in hospitals," incidentally the title of an important study by C. Rufus Rorem that has just appeared in America under the auspices of the Committee on the Costs of Medical Care. The rapid growth of the modern American hospital in the matter of initial expenditure and subsequent upkeep was one of the contributions made during the prosperous decade that terminated so disastrously a year ago. Mansholt's criticisms, written in a delightfully friendly manner (friendly to us as well as to the European) deal with the situation as we are beginning to see it now, and for this reason we are more inclined to agree with him to-day than we might have been a year ago.

The following quotation from his article is a sample of his penetrating study:

"I see the matter in this light: Suppose a primitive group of population, unacquainted with any hygienic ideas, and who, therefore, are ravaged by diseases in the manner usual in the Middle Ages. Amongst them appears an energetic man, skilled in the knowledge with which modern science has been able to provide him, and with a minimum of resources—some instruments, wound dressing requisites, quinine and a few other remedies. I am thinking, of course, of Albert Schweitzer. His results approach the miraculous, and do not cost much more than the personal working power, and therefore but little money. Suppose, further, that he can lay his hands on a little more money, and can build himself a primitive hospital and procure a few skilled assistants. The results become still better, but still a bend already begins to appear in the curve that represents the line of the results.

"The more the resources increase, the better the results become, but the line on the graph begins to rise more and more slowly, to approach closer and closer to the horizontal, while the line drawn on the ordinate, which indicates the expenses, be-

comes longer and longer, as a rule progressively. Only occasionally does the line of the results make an upward jump owing to the grip of a genius. As long, however, as the line of the results continues to rise, it might be said, there is an advantage. It is, however, hard to judge whether there really is a rise, for, in the course of this time, the people have not remained a wild, uncivilized tribe, but have grown into a civilized community. The original epidemics which decimated it and which occupied its entire attention, have disappeared, and in their place have come all kinds of other diseases, which do not lead so drastically to mass mortality, and of which the etiology is nothing like so open and exposed as was previously the case. They are largely connected with that civilization; improvement or deterioration is no longer to be demonstrated with the only figures that are absolutely reliable in this connection, namely, those of the mortality.[1] What is gained on the one side may be lost again on the other.

"In this stage every extension of intervention entails a certain risk. It is difficult to put this risk into a few words. I have used the expression about rousing the consciousness of disease. Now nothing is better calculated to awaken the consciousness of disease than psychical infection by others, but exaggerated worrying, especially unnecessary treatment and cures, is not without its effect here. Health must be cared for, but not coddled, and especially not worshipped. It is wrong to tell people that health is the highest good that they can possess; they must learn that health is only a means to enable them to reach the highest that nature has made them capable of. Whoever makes a divinity of health to whom daily pilgrimages must be made, arouses the consciousness that his health is actually in danger every moment."

We can only hope, as we see ourselves through his kindly eyes, that this prophet is with honor in his own country. It is clear that the international leaven is working. More power to its activities!

The Rainy Day

IT IS not always fair weather in the financial affairs of the voluntary hospital. Hard times have come upon us and the good are now suffering with the bad.

Not so long ago an important school of philanthropists publicly announced that they did not consider it good policy for social agencies, hospitals among them, to multiply reserve funds for the purpose of guaranteeing their work in the future (or for their friends to do it for them). They contended that every generation should be required to take care of its own and to furnish the costs of maintenance. We are now beginning to face a situation which may test the practicability of this theory. Hospital authorities, having been thrust into the ring, are now grappling with financial difficulties that threaten to overwhelm them.

If the facilities for hospitalization during the last decade in our country have been lavish and out of balance with the needs of its communities, or if we have built, because money was plentiful, without the exercise of sober judgment about the future, we shall doubtless have to adjust the situation as best we can. It could hardly be said that the reaction of the hospital world to the influences of the prosperous era was different from the reaction of any other group, but whatever the result may have been, contributing in a measure to a situation in which only two-thirds of hospital beds are occupied, the quality of the work done must not be lowered. Hospital standards are public health standards and depend in large measure on the supply of funds for their existence.

The contributing public is related to the receiving public in parallel curves, which dip in hard times like these and depress the less fortunate group below the horizontal line which may be graphically represented as "normal." It is true that philanthropy is most needed when it is least able to help. But help it must. If only money could be stored in good times and protected for use during rainy weather!

A Ringing Challenge

AT A recent meeting of the American College of Surgeons, the president of this body emphatically placed the responsibility on the hospital for preventing improperly trained surgeons from working within its doors. He challenged the refutation of the charge that too frequently incautious and scientifically rash operators are permitted to function in the hospital and that this institution does not take sufficient care in investigating the capabilities of the members of its regular and courtesy staffs before permitting them to operate.

There is little doubt but that here and there examples of the betrayal of the trust that patients place in their physician are observed. Less often but often enough to deserve mention, there is found the practice of surgery of questionable necessity. In not a few institutions interns are

[1] The relative mortality of Holland is about three-quarters of the American figure.

permitted to perform major operations without adequate preliminary training or without the personal supervision of members of the visiting surgical staff. This practice cannot be condemned in too strong terms. It represents neither a kindness to the intern nor fair play to the patient. Surgeons cannot be made in this manner. Nor can one fail to observe the modern tendency on the part of the newly graduated physician to desire to blossom early and usually prematurely as a specialist. It is an injustice of major proportions for patients to be allowed to trust themselves in the hands of such verdant operators. General surgeons occasionally, otolaryngologists more frequently, harbor among their numbers many such pseudospecialists. In the opinion of many, the removal of tonsils and the correction of deflected nasal septa represent operations far from minor in character. Fortunate it is that the oral cavity hides the results of such maltreatment and that nature is exceedingly kind in healing the wounds left by a clumsy operator.

Let there be a frank and fearless committee of the staff through whose hands will pass all recommendations for reappointment and for the creation of new positions. Who better than the physician himself is able to judge the capabilities of his colleagues?

The president of the American College of Surgeons is correct in his surmise that the protection of patients, whether private or ward, from the mistreatment of inexperienced surgeons is the joint business of the board of trustees and of the professional staff of every hospital.

Cancer Prevention

NATIONAL, state and local medical associations have for years urged the early diagnosis and treatment of all potentially malignant conditions. It is encouraging to note that these associations are militantly and persistently pressing for the widespread creation of clinics for the diagnosis, treatment and follow-up of cases with tumors generally and specifically for those new growths that are malignant.

But it must be conceded that many inadequately financed and unscientifically conducted cancer research projects are now in existence. The ability to cure many of the hitherto incurable diseases is the constant subject of proclamation by the quack. Nevertheless from the laboratories of those who talk little and work more must eventually come the information as to why tumors begin and as to how they may be prevented or cured. To hasten this day the most careful clinical observations must be made at the bedside. Hence it is the duty of the general hospital to assist in carefully compiling these clinical observations, in order that they may be available for the research worker whose test tube theories must later be judged by the practical results following their exemplification in the hands of the clinician.

Hospital Guilds

IT IS no less difficult for the hospital patient to secure sufficient funds with which to reimburse the institution for his care than it is for the hospital to meet its financial obligations. Indeed, usually the impecuniosity of the former is a cause of the financial difficulties of the latter. And yet it appears almost impossible to convince the members of any community of the inevitability of sickness. Statistics without end may be available and yet illness usually finds the average member of the lower economic class unprepared.

Here and there one observes that beneficial societies or guilds are being formed in an effort to bring about preparedness for illness. Such a movement should receive the encouragement of hospitals and they should cooperate in every possible manner in rendering the best care to members of such a group. Surely from a purely financial standpoint such an arrangement even at a slightly reduced private or semiprivate rate would be eminently more advantageous to the hospital than the endowment of beds by such societies. If each family could be urged to accumulate in the treasury of such a guild from seventy-five to eighty-five dollars a year, the expenses for the care of its members when they become ill would approximately be met. It is the failure to prepare for sickness and the consequent swelling of the hospital's deficit because of the need for the free treatment of the improvident that places the hospital on the street corner as a gatherer of alms.

Members of the working class are yet to be convinced that they have no right to expect their credit at the hospital to be better than at the corner grocery store. And while the hospital will never close its doors to the needy sick, the expense for such a service should represent an honest debt requiring satisfaction at a later date. Consideration of the claims of the humanities is proper, but this fact does not presuppose that hospitals must continue always to be charitable institutions to the present unreasonable degree. All propaganda for financial preparedness for sickness must aim to serve the sick effectively and yet render the hospital able to conduct its business more on a pay-as-you-go basis than is now usually the case.

Practical Administrative Problems:

Standing Orders in the Pediatric Department

By JOSEPH C. DOANE, M.D.
Medical Director, Jewish Hospital, Philadelphia

IN PRECEDING articles the importance to the hospital of the formulation of standing orders for the guidance of visiting physicians, interns and nurses working in the maternity, surgical, medical and other specialty departments has been stressed.

The standing order book is no less necessary to the department for the treatment of diseases of children. Since these wards possess the greatest of service possibilities and at the same time present serious administrative difficulties of a peculiar nature, the technique here must be of the finest. The susceptibility of children under twelve years of age to many contagious and infectious conditions is well recognized. In too many institutions there exists a faulty belief that there is no strong indication for the exercise of an unusually careful technique in the handling of children and that the danger of cross infection is largely centered in the work of the general surgical and surgical specialty departments. Notwithstanding this misconception of the facts experience proves that the prevention of cross infection in children requires just as detailed and carefully formulated procedures as are necessary either in the operating room or in the surgical ward service.

What Is Aseptic Technique?

There is much haziness in the minds of many administrators, nurses and interns as to the meaning of the term "aseptic technique." To many it implies the exercise of haphazard common sense precautions in the handling of contagious conditions. Perhaps in a greater measure than in any other procedure in the hospital is carelessness observed in the practical exemplification of the principles underlying this system. To others the practice of an aseptic technique implies merely gowning and hand washing. In the opinion of still another group the protection afforded by these simple precautions is deemed unnecessary.

Aseptic technique includes all precautions that concern themselves with the bacteriologic, if not the physical, isolation of each patient under treatment. It presupposes in its most inclusive sense that it is possible safely to treat two patients with different types of contagion in the same room with but six feet of air space separating them. It requires for its successful practice an intelligent understanding of its details by all those coming in contact with the patient. It presupposes a teamwork that is brought about only by the most careful drilling of all persons in any way serving the patient. These may range in scale of importance and education from the orderly or maid to the visiting chief of staff.

The Value of an Observation Department

Recognizing as one must the important and indeed the life saving possibilities of the proper practice of such a technique, it immediately becomes evident that no standing order book can justify its existence unless the rules requiring and regulating the practice of these principles are explicitly set down. Nor is it sufficient that such rules appear only in print, since in order to guarantee their observance daily and even hourly supervision must be afforded. No standing orders covering the practice of an aseptic technique can be efficiently enforced unless structural provisions have been made, that is, properly arranged wards and rooms where adequate provisions for bacteriologic isolation have been made by the installation in sufficient numbers of hand washing sinks, soap containers and paper towel holders. It would be folly indeed to endeavor to enforce bacteriologic cleanliness between the examinations of patients unless facilities for bringing this about are provided. Moreover the proper plan of assignment of patients requires that provisions be made for the physical isolation of various types of children, such as feeding cases in children under one year of age, children of both sexes from one to twelve years of age, and medical, surgical, tonsil and infectious patients. Standing orders relative to

the assignment of the various types of children, therefore, should be available for the guidance of physicians and others upon whom this responsibility falls.

The creation of a properly conducted observation department is an excellent plan and yet in a way such a step is contradictory to the principle that is being discussed. If the proper aseptic technique is taught interns and nurses, and if cubicles, hand washing basins, soap containers and paper towels are available in sufficient numbers, it should not be necessary strictly to isolate all incoming children for a period of from ten days to two weeks in order to protect children already resident in the hospital. In the average general hospital, however, it is perhaps a safer policy from a purely practical angle to provide an observation department for the reception of all newly admitted children rather than to rely solely on an aseptic technique that is likely to be carelessly practiced because of the changing nature of the nursing personnel and of the infrequency with which actual contagion is encountered.

Combatting Contagion

Even though an observation department is considered by some as a confession of weakness, to practice the usual ward technique in the handling of children is even more blameworthy—it assumes proportions that may endanger life itself. Regulations covering the assignment of cases to this department, the size of the institution's pediatric clientele and the policy adopted as to the length of time during which observation shall be practiced are factors that will determine the size of this department. With the exception of chickenpox, the period of incubation of most of the acute exanthems expires at the end of two weeks. This department, divided as it should be into cubicles with adequate provisions for running water, should be the area through which all children entering the pediatric department proper must pass. Gowning, capping, hand washing, rigid restrictions as to visitors and the prevention of more than a minimum handling of children are all precautions that should be carefully carried out.

It may be said in passing that the doctors, including both the visiting and the resident staffs, are the worst offenders in vitiating the protection that should be afforded by this technique. It should be possible by the proper conduct of an observation department to protect the pediatric department proper from the entrance of all contagious conditions.

The protection of children against impetigo, vaginitis, streptococcic infection and other allied troublesome conditions should be both possible and effective. This observation department simply represents a buffer placed between the potentially infected child who is brought to the hospital for treatment and those who because of the length of their stay have proved themselves noninfectious. It is not the usual practice to allow typhoid fever, erysipelas, pneumonia or other conditions of this type to be treated for any extensive period of time in the observation department, these patients usually being assigned to isolation rooms in the pediatric department proper. Standing orders usually require that throat and vaginal cultures be taken in the receiving ward and that a thorough inspection of all cutaneous and, as far as possible, mucous surfaces be made for the detection of evidences of actual contagion. Each nurse and doctor should previously have been so well drilled in the steps to be taken that if a contagion develops little additional instruction is required. Not only is a quarantine expensive to both the public and the hospital but each hour of contact of uninfected children with one suffering with a contagion is fraught with danger.

Moreover, the term quarantine is one that may mean much or little. Dependent upon the intelligence and zeal of the hospital's executive staff is the establishment of a quarantine a life saving or a dangerous practice. In most standing order books, two types of quarantine are mentioned—a modified and a strict quarantine. In the former, the wearing of gowns is mandatory and the washing of the hands after contact with each patient is strictly required. Patients suffering with such conditions as pneumonia—lobar or bronchial—typhoid fever, streptococcic infections, tuberculosis, encephalitis, cerebrospinal fever and indeed from any high fever until the reason for it is established, are usually placed in a modified quarantine. The physical isolation of patients, with the exercise of reasonable care as to the disposal of garbage or soiled dressings, together with the adoption by the members of the hospital personnel of the precautions mentioned above, constitutes what is described as modified quarantine.

Some Quarantine Requirements

When any of the acute exanthems develop in the children's department, however, sensible regulations insist upon the immediate removal of the patient and the quarantine of the ward as far as the admission and discharge of patients are concerned. Visitors are, of course, refused admission. It is a splendid thing for the standing order book to include a description of every detail connected with the establishment and conduct of a strict quarantine. Nor does it seem feasible in the average general hospital to endeavor to con-

duct such a quarantine within the ward itself. The wearing of masks, caps and gowns by all examining physicians, nurses and attendants while in the patient's room must be insisted upon. In some hospitals, nurses are not required to wear gowns when taking temperatures, administering a hypodermic injection or counting a pulse. On the other hand, many hospitals insist strictly upon gowning and capping irrespective of the duty to be performed within the quarantined area. The scrubbing of hands before the removal of the gown is of the utmost importance. Failure thus to cleanse the hands is perhaps the most frequent breach of quarantine technique that one observes. The hanging of gowns with their clean side out and the washing of hands after the removal of the gown are but common sense procedures. It should be unnecessary to add that the hands of doctors and nurses should as a routine be washed after the handling of each patient and before touching the next. The wearing of gloves by nurses while giving enemas or taking temperatures should be required.

How Sterilization Is Carried Out

A complete set of ward supplies for each individual patient should be provided. These should include a bedpan, urinal, enema tip, rectal tube and in most instances special dishes. The provision of individual supplies does not preclude the necessity of their sterilization after use. In addition to the articles mentioned various types of glassware, a water pitcher and sputum cup, as well as numerous smaller articles that may be required should be furnished. Provisions must, of course, be made and orders formulated covering temporary storage of infectious gauze, bed linen and bed wearing apparel. All such infected materials must be sterilized before they leave the isolated area. It is courting disaster for institutions to depend too implicitly upon the sterilizing capabilities of the general hospital laundry.

The quarantined area should be rigidly protected from flies, and whenever this is impossible a mosquito netting canopy should be provided for each bed. All patients within the quarantined area must receive complete bed treatment and must not be permitted to use common toilets nor must they be removed from this department for the purpose of taking x-rays or for the carrying out of any of the other medical or surgical procedures.

Interns should be required to inspect patients at least twice daily when under treatment in the observation department or in a special quarantine. Moreover, with but minor exceptions, the same careful precautions should be enforced as would be the case if actual contagion were present. When the intern on his inspection rounds discovers the presence of a cutaneous rash, an exudate, a rise in temperature or any other suspicious conditions, standing orders should require the immediate reporting of this fact to the proper resident or visiting officer.

Keeping proper records in the pediatric department is of the utmost importance and yet associated therewith are difficulties not encountered in the same degree in the compilation of the charts of adults. Most children are incapable of furnishing complete data in regard to the inception and symptoms of their illness and the hospital intern must therefore depend upon the data obtained during the visits of parents, relatives or others who are informed concerning the facts in the case. The physician in the receiving ward is usually instructed to secure and to transmit with the patient as complete a history as possible.

Most institutions possess a special history form for children. Not infrequently a copy of this form is printed in the standing order book. A clear-cut, concise statement of why the child was brought to the hospital can be secured only from the sources mentioned. A description of the present illness with special reference to the method of onset and a definite notation as to the presence of certain symptoms commonly observed in children, such as vomiting, diarrhea and convulsions, must be included. A description of the family history and of the home environment is of the greatest importance. A full narrative of the events in the child's past history, the duration of labor at the time of its birth, the condition of the child at that time all should be fully described in the history. The contagious diseases with which the child has been infected, the type of serum therapy, if any, that has been employed and the outstanding symptoms relative to the special senses, the throat, thyroid, thymus, lungs, heart, gastro-intestinal, urinary and genital systems must be described.

Securing Adequate Histories

As has been indicated, more important than in the case of the adult is the presence of a complete history before the physical examination of the child is undertaken. This is true because of the uncertain symptomatic disease so often manifested by the child. Hence a thorough and painstakingly elicited story of the child's life beginning with its birth and terminating with the present illness is of the utmost diagnostic and therapeutic importance. This description must include, of course, a mention of the age and sequence of development of the special senses and

particularly of the time at which the child began to talk and walk.

Only in the hands of a skilled pediatrician can a proper physical examination be made. For this reason, the findings of the intern or resident physician must be carefully checked and rechecked by his chief with a thoroughness not so necessary in the wards for adult patients. Standing order books should include a specific statement of the method by which physical examinations are to be made. A general consideration of the appearance and nutritional condition of the patient, with a description of his facial expression, physical and mental development and of his nervous response to external stimuli is essential. Particularly should a search be made for evidence of contagion, enlarged thymus or for the presence of any degree of adenopathy. In an attempt to exclude the presence of any contagious disease, a complete and thorough inspection of the oral mucous membrane and skin surfaces must be required. The detection of stigmas of degeneration as manifested by clubfoot, steeple palate, harelip and abnormalities of the extremities is of the utmost importance. A careful neurologic examination for abnormalities of the deep and superficial reflexes should be required. One of the most important matters to consider is the early inspection of the stools, noting particularly the color, consistency and undigested food elements.

How Temperatures Should Be Taken

Unless required by the standing order book and enforced by the visiting pediatrician, it is difficult to secure daily notes that are both intelligent and descriptive. Frequently the information secured from the nurse's sheet is of more importance than that learned from the notes of the intern. Perhaps this is true in some cases because the nurse is able continually to observe the patient, an opportunity that is not afforded the physician who is on duty in the pediatric department.

Specific orders in regard to temperature taking are of the greatest importance. In not a few instances have nurses carelessly entrusted thermometers in the mouths of children and later have been terrified to observe that they have been broken and the child endangered by swallowing mercury and broken glass. Each patient should have an individual thermometer, and certainly in the case of children under nine or ten years of age temperatures should be taken by rectum. Even with children of this age thermometers while in the patient's mouth should always be held by the nurse. Hourly or second hourly temperature taking should be required during the first twenty-four hours' stay in the hospital, particularly in the case of children who are seriously ill. Information relative to a gain or loss in weight is important to the pediatrician.

Standing orders should definitely set down instructions regarding the time at which patients should be weighed and should stipulate the methods by which these records should be kept. Breast fed babies, for example, should be weighed immediately before and after nursing. It should be unnecessary to state that in weighing children the scales should be properly protected in order to avoid the bacteriologic contact of one patient with another. Any undue gain or loss in weight should be reported at once to the physician in charge of the department. A chart has been adopted by the pediatric department of an eastern hospital which shows the food intake in terms of calories, the weight curve, the presence and frequency of vomiting and the frequency and nature of stools. By the use of this form, pediatricians can at a glance gain information as to the progress his patient is making and can secure in a brief time facts that would require considerable searching of records if this chart were not available.

Standing Orders for Laboratory Tests

One of the most difficult problems that confronts the pediatrician, the nurse and the intern is how to secure stool, urine and gastric specimens for study in the laboratory. In some instances, the reaction of the urine is employed as a guide to the amount of and the wisdom of continuing the administration of potassium citrate or others of the alkaline diuretic group. When this is true, the nurse is required to test with litmus paper the reaction of the urine immediately on voiding. Standing order books should fully describe the method by which a twenty-four-hour specimen of urine shall be collected. The proper equipment should be provided so that this can be accurately done. At least twice a week it is customary to require that stools of all feeding cases be preserved for the inspection of the visiting chief. To this end, adequate icebox space is necessary.

Standing order books likewise should set down definite instructions as to the proper method and time of feedings, various types of food frequently being prescribed at from three to six-hour intervals. It is usually stated also that patients should be awakened for scheduled feedings and the ingestion of water. Nurses should be required to hold all bottles for feeding babies, the bottles never being supported by blankets or other objects. Instructions relative to feeding the premature baby are important.

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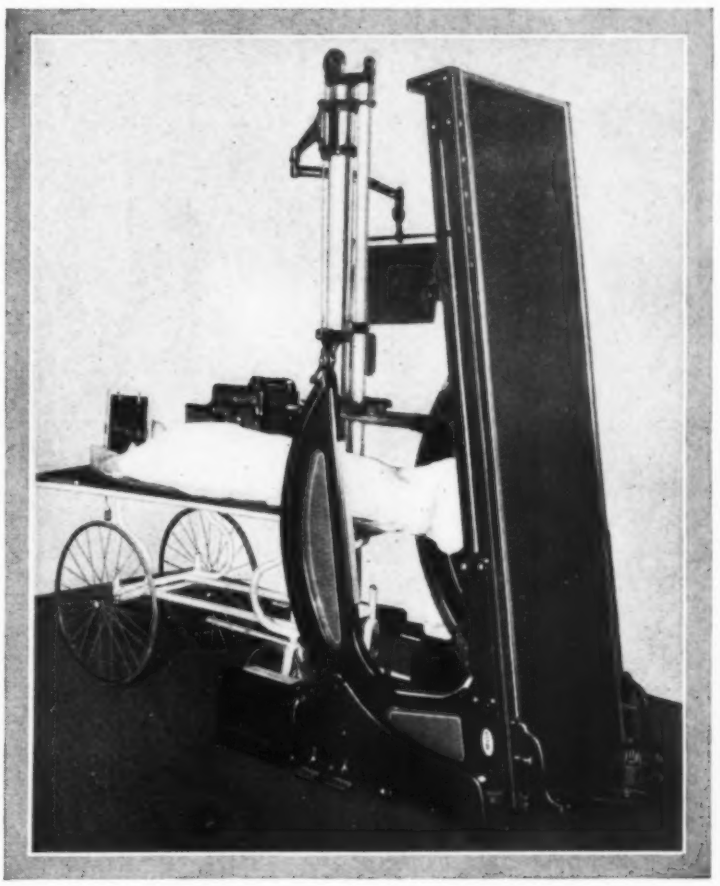

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ganization and work of the milk laboratory should also be set down. Whether a special dietitian should be provided for this service is a question that the financial condition and the organization of the hospital must determine. It would be a splendid thing if resident physicians and interns, as well as pupil nurses, could receive some practical instructions in the preparation of milk formulas. The sterilization of the bottles, nipples and miscellaneous utensils employed in the filling of the milk formulas prescribed is so often done as a routine that mere mention of this need is justifiable here.

There is a definite place in the standing order book for specific instructions relative to the type and scope of the medical surgery permitted within this department. Moreover, rules should be set down as to the amount of responsibility that interns may assume in this respect and as to the degree of supervision that is required. Specific mention should be made of such procedures as spinal puncture, intraperitoneal injections of glucose, the securing of blood samples by venipuncture, as well as other procedures that are often considered harmless. Only after careful and painstaking instruction should interns be permitted to perform intraperitoneal injections. Although it is well recognized that the administration of fluids in this manner is often life saving, yet not a little skill is required properly to perform this type of work. Longitudinal sinus punctures are not the simplest of procedures and even the abstraction of blood for specific serologic and chemical studies may present serious difficulties. Spinal puncture needles have not infrequently been broken in the case of a refractory child. This minor operation certainly presents more troublesome aspects in the child than it does in the adult. Visiting pediatricians should properly instruct their interns before they are allowed to perform this type of work.

Regulating Special Treatments

The use of hydrotherapy in the treatment of children is of the greatest importance. This ranges from the administration of the simple cleansing bath to the giving of continuous baths in the case of children with active motor irritation or to the use of counterirritant baths, such as is done when a mustard suspension is employed. Standing orders should set down the proper prescription for the mustard bath. The concentration usually employed is gained by suspending a bag containing two ounces of ground or powdered mustard in four to six quarts of water. A rough although practical rule specifies that the bath is of sufficient concentration when the mucous membrane of the nose or of the conjunctiva of the nurse is definitely irritated. The temperature of this bath usually ranges from 99 to 101° F. and its duration from ten to fifteen minutes.

While not classified under the heading of hydrotherapy, the mustard plaster is of the greatest use in the treatment of children. It is astounding to note how often resident physicians are indefinite in regard to the preparation of this treatment. Frequently one part of mustard to ten parts of flour is employed with the addition of some albuminous substance, such as the white of an egg. The mustard pack is still another method by which counterirritation can be secured. Two to four tablespoonfuls of mustard are added to two liters of water for the mustard pack and the patient is wrapped in a sheet moistened in this solution. Such practical matters as the prevention of irritation of the child's eyes should be covered in the standing order book, as well as the frequency with which the skin is inspected for knowledge as to the patient's response to this treatment.

Aseptic Technique Must Be Maintained

Definite regulations covering the use of physiotherapy, such as employing the quartz light or the use of electricity in any form, must be worked out in order to safeguard the child from danger. Moreover, such a simple matter as the prevention of the interchange of articles by several children when occupational therapy is provided is important. Playthings may become contaminated and in this way infection may be passed on from one child to another.

There are some matters that should be referred immediately to the nurse in charge of the ward if discovered by one of her subordinates, or to the visiting pediatrician if first noted by an intern. Any patient who develops a rash, cough, rhinitis, pharyngitis or laryngitis should be immediately isolated. A report of the occurrence should be made to the physician in charge. When a patient who has been running a normal temperature develops a fever in excess of 100° F., a report of this fact should immediately be made. Physicians, nurses or others breaking any part of the aseptic technique should be reported to those in authority. When any suspicious cutaneous or thermic symptoms are noted, immediate isolation of the child should be provided; inspection of the nose and throat and a culture thereof made; a specimen of urine sent to the laboratory, the next succeeding stool preserved for inspection and all precautions indicated as necessary instituted until proof of their uselessness is forthcoming.

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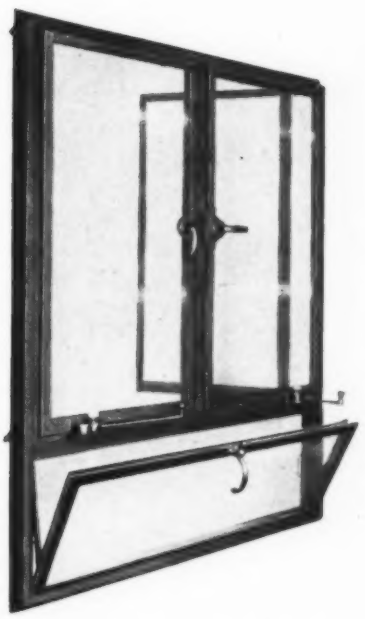

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NURSING AND THE HOSPITAL

Conducted by M. HELENA MCMILLAN, R.N.,
Director, School of Nursing, Presbyterian Hospital, Chicago

What One Nurse Is Doing

By EDNA LEWIS, M.A., R.N.
Director of Health Education, Jackson County Health Department, Independence, Mo.

INVESTIGATION has shown that one of our serious health problems lies in rural districts, especially as regards the health of the school child. In an attempt to remedy this situation for their county, the women's auxiliary of the medical association of Jackson County, Missouri, undertook an entirely new piece of work. Although the personnel of the local county health unit was unusually large, with a full-time health commissioner, one tuberculosis and two general nurses, two sanitary inspectors and a secretary, the work done was almost wholly corrective, little being done along preventive lines.

With farseeing vision the auxiliary conceived the idea of making the teacher the center of the health program for the schools rather than centering the work in the health department. This relatively new emphasis is sound for the teacher is, outside the home, the best guardian of the health of the child and is the logical person to do the health teaching. In this way she can reach large numbers over a widely scattered area. In isolated districts it is the teacher who is in control of contagion; it is she who must provide first aid in emergencies; she is the one who does most of the follow-up work in the correction of defects; in the matter of teaching health she best knows the pupils and hence can make the best approach to the subject. Of even more importance is the fact that the best health teaching is done incidentally. Health education is like moral education, it is better caught than taught. The teacher is continuously teaching health whether she is aware of the fact or not.

Thus to make the teacher the center of the health program for the county involved a new problem. How could the teacher teach health or lead in the health work if she was wholly untrained for the work? The teachers of the county, like other rural teachers and many urban teachers, had little or no training in health education. This is a relatively new subject. There are few practical courses in health education, little material is available to help the teacher, there are few to whom she can turn for advice—no wonder she is lost. In a few years health education will be required of all teachers before they enter the classroom, better and more practical courses will be given and good supplementary material will be at hand. It was the present crisis that the vision of the auxiliary sought to meet. For this reason an extra worker was employed to come into the county and give her full time to helping the teacher with her health teaching. I was selected for the work and spent two interesting school years attempting to carry out this program.

The task required that the support of the teachers be won for a program that seemed to add work to an already overcrowded curriculum. To make the teacher see that health is not an added subject but an essential background for all school work, the health and educational work must be correlated more closely than is usually the case in rural districts. The enthusiasm of the teachers, the pupils, the community, the health department and the superintendent of schools must be aroused.

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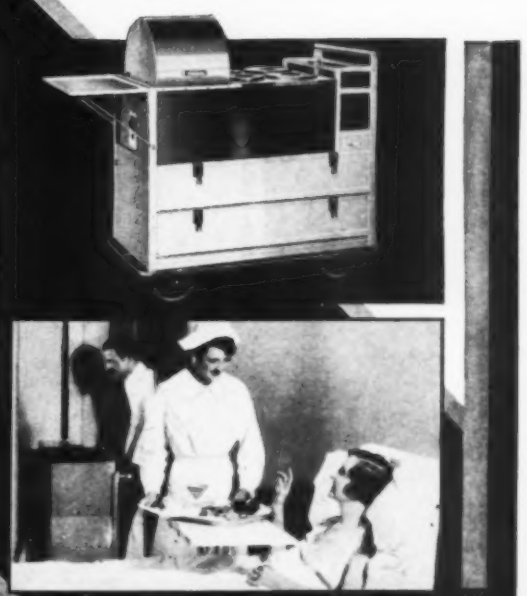

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of education is helping people do better that which they would do anyway. The approach to the teachers was always that of a co-worker interested in a common problem, the good of the child. Visits to the schools revealed at once that the most crying need was for help in teaching the required state course of study in health education and for more good health literature. There were other needs as urgent as these but the teachers as a whole did not sense them. A wise principle of education states that knowledge for which a person does not feel a need does not give the same benefit as that for which a need is felt. My problem was to create a demand for help in teaching health, to show how to make the teaching vital, a living thing that would improve the quality of everyday life rather than being a mere dry-as-dust subject.

I supplied the first two needs as best I could, helping with the state course of study and supplying helpful literature. Mimeographed material was prepared and sent out each month which gave supplementary information on every topic in the course of study. For many teachers this was the only source of material. They used it verbatim instead of as reference material. The gratitude of the teachers for this material, poor though it was because of the pressure of time, has been almost pathetic. It certainly won a sympathetic hearing for anything else I might wish to give them or ask them to do. Health literature that would in the least parallel the required work was hard to find and funds were difficult to obtain. While the use of commercial material is not wholly to be commended, I used some of the better types. The state board of health pamphlets were helpful, and *Hygeia,* "Healthyland," a bulletin, "Suggestions for a Program for Health Teaching," published by the United States Public Health Service, and "The Growing Child," by Bundesen, were supplied by the auxiliary.

Determining the Children's Needs

As already suggested, there were needs in the schoolroom that the teacher in the average school failed to realize. I was puzzled for some time as to the best way to make the teachers realize these needs. My hope at the first of the year was to have the teachers make their own physical examinations of the children, but this did not seem feasible as our health unit was organized. Finally I hit upon the simple yet effective plan of weighing the children. Although the plan of placing children in "zones" based on weight-height-sex has since been proved unsound, the program did much good chiefly because the main emphasis was on gain in weight rather than on being of average weight. Malnutrition is a problem just where it should not be—in the rural community where natural resources are unlimited. I spent considerable time in the health education classes and sent out circular letters on such subjects as essential foods and simple ways of serving hot lunches. Suggestions were sent to parents on how to help the child gain weight, such as the essentials of a child's diet, the need of sleep, happiness as a factor in health and the value of fresh air and sunshine.

As there are 101 schools in the county I was able to weigh the pupils only twice, but the results more than justified the effort made. For the sake of the child I wanted the main emphasis to be on improving the record of the school. After the second weighing, the total pounds gained for the room were added and the improvements sent the teachers in the news letters. Some of the gains were truly remarkable.

How Teachers Were Instructed

The following methods of reaching the teachers were employed:

Visits were made to the schools and the teacher was encouraged to discuss such problems as health teaching and sanitary conditions. This part of the work was by far the most interesting though limitations of time made impossible the number of visits that would have been desirable.

Circular letters were sent to the teachers every three or four weeks. This method was of great importance in furthering the program for it was an economical means of reaching the teachers. I instituted a news exchange where representative pupil health work and news of the different schools were published. This became so popular that the office was well-nigh submerged with material. The health work done in the schools took on a new value when it was written for publication in the news letters.

Health education classes were held for the teachers in different sections of the county. The University of Missouri gave two hours' credit to the teachers who wished to take the class work. This was a considerable inducement for teachers who needed more credit. Many others took the course without credit. The topics covered in the class work, which were also paralleled in part in the news letters, were: (1) disease control; (2) first aid; (3) sanitation; (4) physical fitness of teacher and pupils, and (5) health teaching.

1. Disease Control. The teacher in the rural school is the only person who can stand between the sick child and the well children. A good school record, free from the sweep of epidemics, is effected only by eternal vigilance on the part of the

C5500 Lavatory with gooseneck spout, C7210-A combination closet and bed-pan cleansing fixture with vacuum breaker, hose and spray, and C3308-LF32 Corwith bath, installed in a patient's private bathroom.

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teacher. Routine morning inspection, when the child is given a quick survey to determine whether he is fit to be in school or not, was therefore urged. While the teacher emphasizes to the children such things as cleanliness and neatness, the main point as far as the teacher is concerned is to be sure that the child is free from contagion.

The teacher was urged to keep her standards high and to make the whole process as educational as possible. When excluding a child from school, she was told to explain to both child and parents why this step is necessary and to aim always to establish in the community a health conscience. She was warned never to diagnose a case and above all else to treat all pupils alike. The classroom chart of communicable diseases was put in the hands of each teacher so she might be cognizant of the rules concerning the more common diseases and she was assured that she had the support of the county health unit in following the state rulings. Special emphasis was put on the value of the clinical thermometer in helping to determine whether the child should be in school or not. Letters to the doctors of the county explaining what the teachers had been asked to do and expressing our appreciation of their cooperation in this work resulted in a closer friendship between teachers and doctors than sometimes holds when the doctors, not understanding what is being done, feel that the teachers are exercising too much authority in such matters.

The more positive side of disease control was also emphasized and things the teacher can do to help prevent the spread of contagion were pointed out, such as teaching the right use of the handkerchief when coughing and sneezing; the right use of drinking fountains and the avoidance of common drinking cups; keeping fingers and pencils out of the mouth; washing the hands before eating; the value of fresh air in the control of respiratory diseases.

This campaign resulted in schools remarkably free from contagion and in better condition than had existed for the previous twenty-five years, the health commissioner said.

First Aid Simplified

2. First Aid. I greatly simplified this subject to make it of value to the teacher in time of need. I feel that too often first aid and bandaging are almost synonymous and that when the crisis comes the teacher is helpless without her neatly compiled notebook. I may have simplified the subject too much but I have been reassured many times when a teacher has said to me, "Because you made your instructions so simple, I remembered just what to do when Susie nearly cut her nose off or Tom broke his arm." Nothing was said about tourniquets, except when the teachers asked why I did not say something about them. Rather, I emphasized the importance of having sterile gauze on hand at all times, using this directly on the wound and applying only as much pressure as is necessary to control the bleeding. Wound treatment was summarized as follows: (1) allow a little bleeding; (2) sterilize; (3) keep sterile with a light dressing.

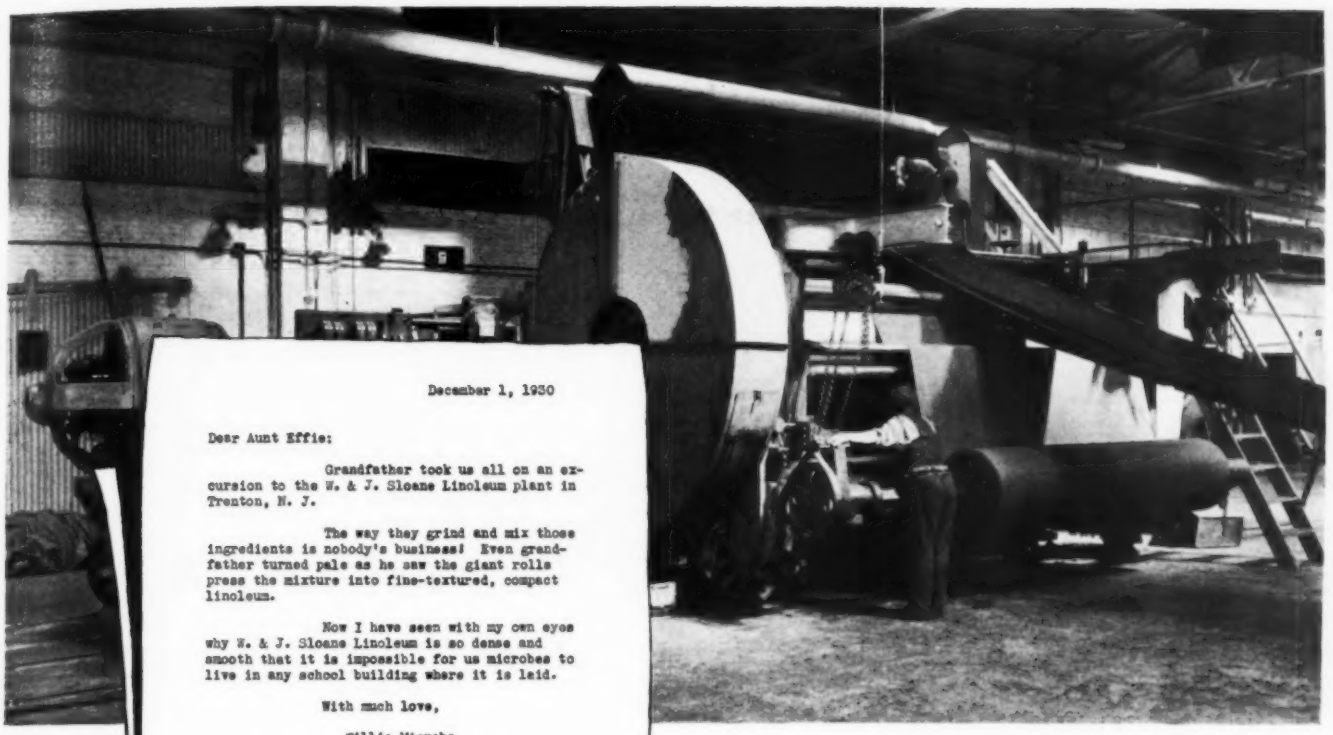
A page of these simple directions for the more common emergencies was sent each teacher, to be posted in the first aid cabinet and this proved of great help.

How Sanitation Was Established

3. Sanitation. This is an important topic for we have no right to teach health when any fundamental principle is violated in the schoolroom. Standards were established for lighting, ventilation, heating and seating. I did not go into any technicalities but emphasized the everyday things the teacher could do to improve the conditions of her room. For example, as regards the correct seating of the pupils, I mentioned the most desirable kinds of seats but the chief emphasis was on the fact that the size of the seat was the important factor and that any teacher could put the small child in the small seat and the larger child in one large enough for him even though this procedure mixed the classes. Feet firmly on the floor and arms at right angles when placed on the desk were the two simple tests given for determining whether the child fitted the seat or not. The teachers responded well to these suggestions and it was a pleasure to see the pupils seated comfortably.

Good ventilation is at a premium in most rural schools. I started early in the fall with the slogan, "A taste for good air can be cultivated." Many of our schools ran true to form, with a temperature of about 80 degrees. The rooms were stifling and ill-smelling. Many, however, improved conditions until it was a joy to enter them, the air was so fresh, invigorating and free from odor. I realize that the rural teacher in a badly constructed building with a poor heating system has a prodigious task before her. The more credit to her when she does achieve good results. But since a well ventilated schoolroom is so important, both because it increases the pupils' power to concentrate and keeps them physically fit, no effort is too great to ensure it.

4. Physical Fitness of Teacher and Pupils. This topic fits in with the "six-point" program of the state which was the method by which the subject was approached. We discussed why these par-



December 1, 1930

Dear Aunt Effie:

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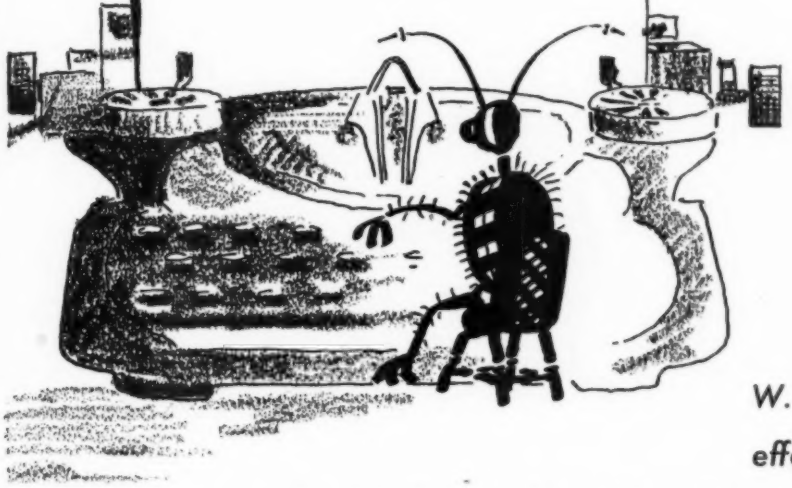
Now I have seen with my own eyes why W. & J. Sloane Linoleum is so dense and smooth that it is impossible for us microbes to live in any school building where it is laid.

With much love,

Willie Microbe

P. S. The School Board has just ordered W. & J. Sloane Linoleum for No. 9 School. We are moving at once.



The giant calender in the W. & J. Sloane Plant is the largest in the world. In a single operation it presses the ingredients uniformly in texture, density and thickness on to a strip of burlap to form, except for seasoning, trimming and inspection, finished linoleum.

W. & J. Sloane Linoleum is especially effective against microbes. Extra grinding of ingredients plus 32% extra pressure in the calender rolls gives W. & J. Sloane Linoleum a uniform texture without cracks and crevices. Double-waxing at the plant adds a super-smooth finish, making it possible to use the linoleum as soon as laid. School officers and members of school boards will find in our comprehensive book: "Linoleum—What It Is—How It Is Made in the W. & J. Sloane Plant" many other reasons—sanitary, economic and decorative—for using W. & J. Sloane Linoleum. We will gladly send you a copy on request. Address Advertising Department, W. & J. Sloane, 577 Fifth Avenue, New York.

W. & J. SLOANE LINOLEUM

ticular six points—posture, care of the nose and throat, care of the ears, weight, care of the eyes and teeth—were emphasized for correction, particularly stressing the influence of these on progress in school. Any teacher who may not be interested in the physical welfare of the child *per se* will become interested if she is made to feel that his progress in school is contingent upon the pupil's health.

A big step forward will have been taken when we teach teachers, especially in sections where there is not a county or a school doctor, to make their own physical examinations. Detroit led the way several years ago and other school systems that have adopted the practice are unstinted in its praise. The teacher in rural sections is the one on whom most of the follow-up work depends. How much more interested she would be in following up her own findings. It is not impossible to teach her to recognize a suspicious throat or to determine whether the posture is good or not.

The other points in the six-point examination are objective and can be determined by the teacher almost as well as by trained health workers. I do not believe that the examinations will be 100 per cent perfect, unless more time and care are allotted to the examination than are usually given. What we shall discover will be the outstanding defects. The teacher has the advantage of knowing the past history of the child, which is often difficult for the doctor to obtain. When we can have qualified examinations by a physician we should have them, but the teacher should be present and should know just what conditions are found. We should then have the value of her advice and might hope for more intelligent follow-up work.

The Healthy Teacher an Asset

We did what we could to enlighten our teachers as to the findings of the examination by sending each one a chart on which the physical record of each child in her room was recorded. Accompanying the chart, we sent a letter urging the teacher to use her influence in every possible way to get children in need of treatment to see the doctor or the dentist. Our teachers were our unfailing allies in this important work.

We too often neglect to emphasize the importance of the teacher's being a "six-pointer." Corrective work in the school should start here. What can a teacher do to promote the health of her room if in her person she violates every principle of well-being? Children are born imitators. If the teacher has had all her physical defects corrected, if she is bubbling over with health, vigor and vitality, the program will be carried out.

5. Health Teaching. This is often considered the main topic of health education but I feel that it hinges entirely on the topics already enumerated. Only after we have ensured the welfare of the child through good sanitation, prevention of disease, proper care after accidents and seeing that he is physically fit and taught by a physically fit teacher, are we ready to try to teach him anything about health.

Raising Health Standards in the Kentucky Mountains

The Frontier Nursing Service, which is functioning in the mountains of eastern Kentucky, has recently published its fifth annual report which lists the names of the donors, togther with the amount of their contributions to the service.

The frontier nursing service is under the direction of Mary Breckinridge, assisted by several nurses who are trained by the same system that trains the famous Queen's nurses of Great Britain, who combine midwifery with nursing. The nurses are required, in addition to their general training and their public health, to be especially prepared as midwives under the Central Midwives' Board requirements in Great Britain.

The Kentucky service is modeled after the plan in use in the Scottish highlands. The nurse-midwives live in little houses in the heart of their districts of not more and sometimes less than a five-mile radius, which is about seventy-eight square miles. There are at present five of these centers, which cover about 350 square miles in two counties. The aim is, as rapidly as possible, to cover 1,000 square miles with a population of 30,000 persons, running into three or four counties and not touching the railroad at any point.

For the year ending May 1, 1930, the nurse-midwives delivered 232 women in childbirth, and gave them prenatal and postpartum care. There were no maternal deaths. They also attended 6,972 persons in 1,345 families. Of these, 816 were babies under two years of age, 1,164 were children from two to six years old and 2,340 were school children. Bedside nursing care was given to 301 seriously ill persons. The nurses paid 22,347 visits to 8,563 families and received 10,459 visits at the nursing centers. They were on duty 41,510 hours. The little hospital at Hyden, Ky., was occupied 2,289 days by 169 patients. There was an estimated attendance of 2,181 at sixteen public gatherings in which the nurses took part. At 434 special conferences and special medical clinics by doctors, there was a known attendance of 6,270 men, women and children.

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NEWS OF THE MONTH

Toronto Chosen for A. H. A. Meeting Next Fall

The American Hospital Association will meet in Toronto, Ont., the week of September 28, 1931.

Among the contenders for the honor of entertaining the association members for 1931 were Cleveland, Milwaukee, Indianapolis and Louisville, Ky., but a careful consideration of all the points of Toronto as a convention city as presented by the Toronto delegation at New Orleans has resulted in a choice of the Canadian city.

Toronto is delightful in September. A convention hall of ample size will take care of the various programs and exhibits. Hotels, comfortably equipped, will provide homelike living quarters for the guests. And the entire city, one of the most interesting in Canada, will give a full measure of hearty British hospitality.

Dates Set for Meeting of Council on Medical Education

The Congress on Medical Education, Licensure and Hospitals will be held in the Palmer House, Chicago, February 16, 17 and 18. Participating in the congress will be the Federation of State Medical Boards of the United States and the American Conference on Hospital Service. The Central Council for Nursing Education will hold an institute for lay boards of hospitals and public health nursing organizations on February 17.

Several sessions will be devoted entirely to hospital problems. The care of the mentally ill in the United States will be the topic of the Monday morning program, and mental hygiene will be discussed Monday afternoon. Speakers at these sessions will include Ray Lyman Wilbur, secretary of the interior; Dr. Walter L. Treadway, assistant surgeon general, Division of Mental Hygiene, Public Health Service; Dr. Samuel W. Hamilton, Bloomingdale Hospital, White Plains, N. Y.; Dr. J. Allen Jackson, superintendent, Danville State Hospital, Danville, Pa.; Dr. George S. Stevenson, director, Division on Community Clinics, National Committee for Mental Hygiene, New York City; Dr. Lawson G. Lowrey, director, Institute for Child Guidance, New York City. Dr. W. M. English, president, American Psychiatric Association, Brockville, Ont., will preside at the morning session, and Dr. William A. White, superintendent, St. Elizabeth's Hospital, Washington, D. C., at the afternoon session.

"Hospital Problems" will be the theme of the Tuesday afternoon session with the following speakers: Dr. A. C. Bachmeyer, superintendent, Cincinnati General Hospital, Cincinnati; Dr. H. L. Foss, surgeon-in-chief, George F. Geisinger Memorial Hospital, Danville, Pa.; Thomas V. McDavitt, bureau of legal medicine and legislation, American Medical Association, Chicago; Dr. Fred G. Carter, superintendent, Ancker Memorial Hospital, St. Paul, Minn.

The American Conference on Hospital Service will meet on Wednesday morning, with Dr. Harry E. Mock, president, in the chair. The program will deal with convalescent care, on which subject Dr. E. H. L. Corwin, chairman, committee on convalescent care, and Dr. James A. Britton, Chicago, will speak. In the afternoon this conference will combine with the Council on Physical Therapy, American Medical Association, for a program.

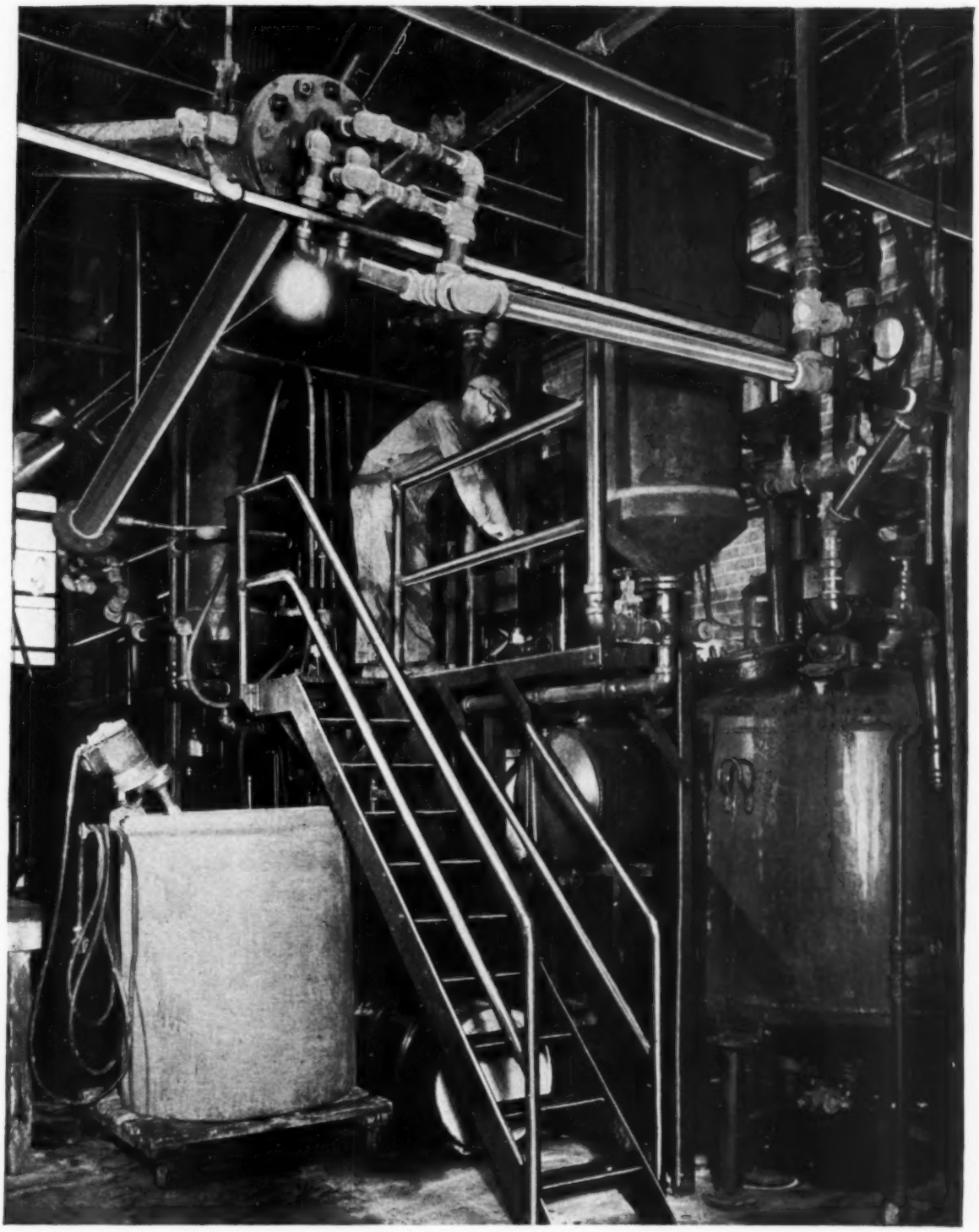
Dr. Maurice Rees Again Heads Colorado Association

With the closing of the two-day session of the Colorado Hospital Association at Denver, December 4 and 5, Dr. Maurice Rees, dean, Colorado University Medical School, was reelected president of the association. Dr. H. A. Green, superintendent, Boulder-Colorado Sanitarium, Boulder, was elected vice-president and Frank J. Walter, superintendent, St. Luke's Hospital, Denver, was reelected executive secretary. Dr. G. Walter Holden, superintendent, Agnes Memorial Sanatorium, and John E. Swanger, superintendent, Modern Woodmen of America Sanatorium, Woodmen, were named to the board of directors.

Speakers on the program included Dr. C. O. Giese, Colorado Springs; Guy V. Hanner, superintendent, Beth-El Hospital, Colorado Springs; C. M. Reed, Retail Credit Men's Association, Denver, who spoke on "A Credit Bureau for Hospitals"; Robert Witham, business manager, Children's Hospital, Denver, Paul Fesler, superintendent, University of Minnesota Hospitals, Minneapolis, and president-elect, American Hospital Association, and Dr. Charles S. Woods, superintendent, St. Luke's Hospital, Cleveland. Dr. Bert W. Caldwell, executive secretary, American Hospital Association, who was scheduled to appear on the program, was prevented by illness from attending the meeting.

The two-day program was divided into five sections: the dietetic section; a round table discussion of hospital problems; the annual banquet; the administrative section and the nursing section. Great stress was placed upon the coming session of the state legislature and upon the proposed and needed legislation affecting hospitals. The situation regarding the state compensation fund was discussed and a committee composed of Frank J. Walter and W. G. Christie was appointed to investigate the matter further. At the last section meeting, nursing problems, with regard to training schools or graduate nurses, were discussed. It was decided that the graduate nurse system was more satisfactory in small hospitals, but that the training system was desirable in hospitals of more than fifty beds.

Recommendations of the trustees that the date of the annual meeting be changed from December to November and that the meeting be held in some city other than Denver next year, were accepted.



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View in the chemical department of Eli Lilly and Company, Indianapolis

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News of the Month

Coming Meetings

Annual Congress on Medical Education, Licensure and Hospitals.
Next meeting, Chicago, February 16, 17 and 18.

Hospital Association of the State of Illinois.
President, E. E. Sanders, Ravenswood Hospital, Chicago.
Secretary, E. I. Erickson, Augustana Hospital, Chicago.
Next meeting, Chicago, May 13, 14, 15.

Indiana Hospital Association.
President, Dr. William C. Doeppers, Indianapolis City Hospital, Indianapolis.
Secretary, Gladys Brandt, Cass County Hospital, Logansport.
Next meeting, Chicago, May 13, 14, 15.

International Hospital Congress.
Secretary General, Dr. E. H. Lewinski Corwin, 2 East 103rd St., New York City.
Next meeting, Vienna, June 8-14, 1931.

Iowa Hospital Association.
President, Robert E. Neff, University Hospital, Iowa City.
Secretary, Clinton F. Smith, Allen Memorial Hospital, Waterloo.
Next meeting, Cedar Rapids, March 11-12.

Hospital Association of Pennsylvania.
President, William M. Breitinger, Reading Hospital, Reading.
Secretary, Howard E. Bishop, Robert Packer Hospital, Sayre.
Next meeting, Philadelphia, March 24-26.

Western Hospital Association.
President, G. W. Olson, California Hospital, Los Angeles.
Secretary, Grace Phelps, Doernbacher Memorial Hospital, Portland, Ore.
Next meeting, Oakland, Calif., April 22-23.

Wisconsin Hospital Association.
President, Dr. R. C. Buerki, State of Wisconsin General Hospital, Madison.
Secretary, L. C. Austin, Mt. Sinai Hospital, Milwaukee.
Next meeting, Chicago, May 13, 14, 15.

Jewish Hospital to Have Research Tumor Clinic

Through the generosity of a friend of the institution and of medical science, a research clinic devoted to the study of tumors is to be established in the Jewish Hospital, Philadelphia, under the directorship of Dr. Leon Solis-Cohen. It will include a department of radiology, a department of clinical research, a department of experimental research, a department of education and a dispensary for the reception and care of patients.

The clinic will have for its object not only the treatment of patients according to the best methods of the day, whether medical, radiological, electrical or surgical, but also and especially the study of the means of early recognition of the affection.

In this connection it will include among its activities an educational project—the dissemination of information tending to encourage among the public both periodic health surveys and prompt consultation of the family physician in case of any departure from health. It will try to help in robbing the words, "tumor," "cancer," "epitheliona," and the like, of their terror, by spreading the knowledge of the amenability of many such conditions to treatment when discovered and properly dealt with sufficiently early, and will urge sufferers not to delay their consent to operations should these be advised by competent surgeons. In this educational work the clinic will cooperate with other allied agencies and other local and national organizations. The clinic also expects to cooperate with other clinics and research workers in such ways as may from time to time seem desirable and possible.

Dr. Joseph C. Doane, medical director of the hospital, will act as consulting physician and will be on the advisory board. In addition, the members of the visiting staff of the Jewish Hospital will give their services as consultants in medicine, surgery and the various specialties.

Church and Community Join in Building Hospital

The cornerstone of the new Independence Hospital, Independence, Mo., was laid recently.

The hospital, a six-story structure, is to be run under the auspices of the Reorganized Church of Jesus Christ of Latter Day Saints. It is to be built at a cost of $250,000. Of this amount, the community raised $137,000 and the church gave the rest. The hospital is to be managed by a board composed of church and public officials.

Hospitals for Wealthy to Serve White Collar Patients

To reduce the cost of medical attention for white collar workers, two hospitals, originally built to care for the wealthy, have revised their rates downward and 120 prominent doctors will give their services at decreased fees, according to a recent news release. This was announced at the initial dinner of the medical staffs of the Park East and Park West Hospitals, New York City.

Hospital service at reduced charges now is available in the two hospitals to any patient of moderate means, who, in the opinion of a reputable doctor, is in need of treatment and cannot afford to pay full hospital rates.

Since the two institutions were designed at first only to serve wealthy patients, the cost of a room was fixed at from $13 to $40 a day. Under the new plan it will be possible to obtain a room for $6.50 a day.

"Can't I have something instead of milk, doctor?"

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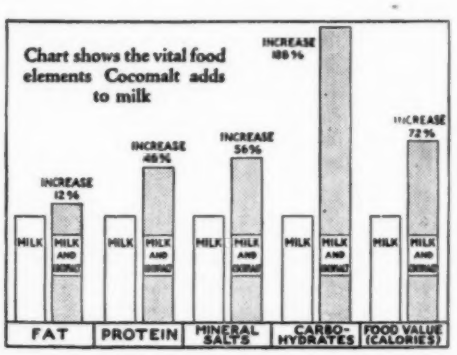

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News of the Month

First Gift Made to New Health Institute

The first contribution to aid in development of scientific investigation by the new National Institute of Health has been received by the U. S. Department of the Treasury in the form of $100,000 in treasury certificates of indebtedness, a gift of the Chemical Foundation, Inc.

The fund, to be used for basic research in chemistry, was received by the Secretary of the Treasury, Andrew W. Mellon, from W. W. Buffum, general manager of the foundation. No anouncement as to the plan of the Public Health Service, of which the new institute is a part, was made respecting the program of investigation now permitted as a result of the gift.

Hospital Construction to Aid Unemployed Men

Construction and repair projects for sixteen city hospitals in New York City at a cost of $5,500,000, which have been announced by Dr. J. G. William Greef, commissioner of hospitals, will provide employment for thousands of men now idle, a recent announcement says.

Negro Hospital in Richmond, Va., Gets $120,000 for Educational Unit

The General Education Board and the Julius Rosenwald Fund, with contributions respectively of $80,000 and $40,000, have made possible the building of a dormitory and educational unit at St. Philip Hospital School of Nursing, Richmond, Va., which is operated under the supervision of the Medical College of Virginia, Richmond. The total cost of the building is expected to be around $127,000.

The new building will provide accommodations for about a hundred student nurses and members of the graduate nursing staff. It will contribute materially to the future usefulness of St. Philip Hospital for Negroes, says Dr. W. T. Sanger, president of the Medical College of Virginia.

New Hospital to Serve Central Cape District of Massachusetts

To furnish the effect of typical Cape Cod architecture, the proposed Central Cape Hospital, Harwich, Mass., will have half-timbered sun porches at either end, if the plans now under consideration are carried through. The central portion of the new building will be of steel, brick and stone and will be fire resistive. It will have forty-three beds for adults, eight beds for children and a ten-bassinet nursery.

Important in the operation of the new hospital will be the endowment. Ward and semiprivate rates will be scheduled in accordance with the patient's ability to pay and will be considerably less than the actual cost in supplying the service the patient requires. As a result, endowment will be sought to make up the difference and to meet the operating deficits. The directors, therefore, have included in the $500,000 budget of the complete program, $250,000, or half the total, for endowment. This will make possible utilization of the hospital even by patients of modest income and will eliminate yearly deficits and annual appeals for funds.

Maternity Center Association Plans Series of Institutes

The importance of the part played by the nurse in improving maternity care is being stressed by the Maternity Center Association, 578 Madison Avenue, New York City, which is arranging a series of institutes wherever they are requested throughout the country. These institutes are for all nurses whether they are engaged in private duty or public health work, in institutional or industrial nursing, and for student nurses. Registration of at least fifteen nurses is required, the fee being $3, to be paid either by the individual or her organization. Interested board members may be invited and physicians also are welcome.

Each institute, which is conducted in four two-hour sessions, includes a general discussion of the maternity situation and the part the nurse may play in improving maternity care; discussions of prenatal care; a brief review of delivery and postpartum care, and detailed discussion of mothers' classes with exhibits and demonstration. Those who wish further information about these valuable institutes should write direct to the association.

Special Nursing Course Offered for the Third Year

Carolyn E. Gray, B.S., A.M., member, National League on Nursing Education, and chairman of the committee on nursing education in colleges and universities, will conduct a midwinter course in nursing administration at the College of Saint Teresa, Winona, Minn., beginning February 2. The course will extend over a period of six weeks. It is being offered at the college for the third successive year under the direction of Miss Gray. The subjects offered this year are as follows: survey of the nursing field, nursing supervision in hospitals and schools of nursing, and principles of teaching applied to the teaching of nursing. Each of these courses carries two semester hours of college credit toward the bachelor's degree.

$60,000 Given for Memorial Wing to Troy Hospital

A new $60,000 addition is to be built to the Samaritan Hospital, Troy, N. Y., as a memorial to James A. Eddy. Mrs. Eddy is the donor of the wing, which is to be known as the James A. Eddy Memorial Foundation Dormitory Building. It will be used to house members of the staff.

The Impressions your patients take home to their friends

Whether they praise or condemn your service, often depends on little things like this.

WOMEN especially like to talk about hospitals, and over many a bridge table you will hear them discussing their impressions of your institution.

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News of the Month

Where Hospital Patients Will Feel Entirely at Home

A hospital that will conform as closely as possible to the patient's home surroundings is to be constructed near the campus of the University of Oregon medical school. It is to be called the Portland Medical Hospital and will contain seventy-five beds.

The exterior will be of English country home character, of white stucco, with a pitched tile roof enhancing the domestic quality. It will stand on a site of two and a quarter acres. On the south slope are arranged gardens, then a forest with meandering paths and here and there recreational areas for croquet, tennis, miniature golf and other games.

The interior has been designed to give a distinctly domestic atmosphere. This will be accomplished by the use of hemlock floors, rugs and curtains in warm colors and tinted walls. A number of the rooms will have individual airing balconies. The interior is further planned with a view to eliminating irritating inside noises—first, by the segregation of the patients in separate wings, and second by the centralization of utilities in the area shut off by glass doors from the corridors that lead to the patients' rooms.

New Building for Men Tuberculous Patients at Philadelphia General

Construction is to begin shortly on a new building for male tuberculous patients at the Philadelphia General Hospital. This building will match the one built more than a year ago for women tuberculous patients.

The new structure will be five stories high, of brick and stone to conform with the eight other buildings. It will be erected at the west end of the present group and will have a capacity of 400 beds. It will be built at a cost of $1,030,548.

$125,000 Outpatient Building Gift to St. Luke's, New Bedford

A new out-patient building has been completed at St. Luke's Hospital, New Bedford, Mass., at a cost of $125,000. The building, opened for service on August 1, was the gift of Ellen R. Hathaway, New Bedford, as a memorial to her mother.

St. Joseph's at Providence, R. I., Doubles Its Facilities

The new wing of St. Joseph's Hospital, Providence, R. I., and the addition to the nurses' home were dedicated recently. It is expected that work on the old hospital structure will be completed by the end of the year. The combined facilities of the new and renovated sections will put the hospital in the 300-bed class, almost doubling the facilities with which it has worked for thirty-seven years. Fifty new rooms and a large auditorium have been added to the nurses' home.

With the opening of the remodeled part of the hospital damaged by fire last February the institution will take its place among the most modernly equipped of its kind in the country.

Facilities Increased at Essex Mountain Sanatorium

A reception at the Essex Mountain Sanatorium, Verona, N. J., recently marked the completion of a new hospital and staff buildings erected at a cost of $1,280,000 and providing for approximately 400 patients at the institution.

The layout of the new hospital is such that a new approach to the institution has been provided through the new hospital wing, leaving the old administration building for administrative purposes solely. Entering a covered porch, visitors will see a large reception room. Leading from this room is the superintendent's office, and across the hall is the admitting office, with special bath and an ambulance entrance in the rear. Three enclosed stairways provide access from the basement to the top floor. An elevator also provides for the transfer of patients to and from the different floors.

Serving kitchens are in the center of the building adjacent to the elevator, thus assuring patients of rapid floor service. All patients' rooms are provided with running water.

Providing for Tuberculous Patients in New York City

The Board of Estimate, New York City, recently appropriated $600,000 for the immediate construction of buildings to house 800 tuberculous patients, 503 of whom now await admission to city hospitals. The boards also voted $300,000 for the reconstruction of the Brooklyn Cancer Institute, which was ordered vacated last March by J. G. William Greeff, hospital commissioner, on the ground that it was a fire trap. By widening the corridors and removing fire hazards, it is expected that the old institution will be serviceable for several years.

Endowment Sought for Special Room for Sick Nurses

Present and former nurses at Presbyterian Hospital, Chicago, have contributed $22,840 of an endowment fund of $35,000, the income from which will be used to pay for a special room to be known as the Mary Byrne room. Here nurses or former nurses may be cared for when they are ill. Any member of the alumnae association will be eligible for care in this room, on the same basis as the nurses. Collections will be continued until the $35,000 quota has been reached.

The Mary Byrne room is a memorial to a former student.

You Can Rout the Ghostly Legions With Your Plans and Specifications

Of all weapons that can be used against the hideous legions, that wait to attack faulty or poorly designed plumbing installations, there is none so sure, so deadly as exact plans and specifications.

When these specifications call for plumbing and fixtures designed to meet and defeat the particular hazards of the job, the careless operation and heavy wear that will be encountered—the battle for sanitation at low through-the-year costs is more than half won.

To get such plumbing into specifications is neither difficult nor costly.

The Clow Soldier of Sanitation stands ready at all times to help you select the proper fixtures, to work out the most economical layouts. At his finger tips is the accrued knowledge of Clow's 52 years of specialized plumbing experience.

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When you specify such fixtures, your plans and specifications become a sword that ghostly enemies cannot withstand.

The Clow Soldier of Sanitation is your ally in the battle for low costs, long life and perfect sanitation in plumbing installations. The world's longest line of specialized plumbing—and 52 years collective experience help him help you. Call him in. This is Bill Latimer, Albany, N. Y.

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Personals

DR. THOMAS A. DEVAN, Rochester, N. Y., is the new superintendent of the Eastern Maine General Hospital, Bangor, Me., succeeding DR. GEORGE H. STONE.

DR. LOREN YULE, assistant superintendent, Cleveland State Hospital, Cleveland, has been named superintendent, Apple Creek Institution for the Feeble-Minded, Columbus, Ohio.

DR. VERNON C. LASSITER, Winston-Salem, N. C., has been elected superintendent of the new Chatham Memorial Hospital, Elkin, N. C., and will assume charge of the institution upon its opening, which will be in February or March. The new hospital has been made possible through the Duke Foundation, citizens of Elkin and members of the family of the late H. G. Chatham.

MAUDE BROKAW, formerly superintendent of Bellevue Hospital, Bellevue, Ohio, succeeds JESSE BUNFORD as superintendent of Monnett Hospital, Bucyrus, Ohio. Monnett Hospital is soon to give way to a new municipal institution, funds for which were voted at a recent election.

DR. NORBERT A. WILHELM has recently been appointed to the administrative staff of the Peter Bent Brigham Hospital, Boston, where he will serve as assistant to the superintendent, DR. JOSEPH B. HOWLAND.

DR. SAMUEL A. COSGROVE has been appointed superintendent of the new Margaret Hague Maternity Hospital, Jersey City, N. J.

FRANK C. ENGLISH, D.D., executive secretary, American Protestant Hospital Association, has, in addition to his duties with the association, taken charge of the hospital division of a large fund raising corporation.

NETTIE VANDERWORK has recently been appointed superintendent of nurses, Tampa Hospital, Tampa, Fla., succeeding NELLIE HARDING, resigned. MISS VANDERWORK has been connected with the hospital more than a year as assistant superintendent.

LUTHER G. REYNOLDS has resigned as superintendent of the Seattle General Hospital, Seattle, Wash., and is connected with the National Thrift Corporation, Los Angeles.

MILDRED HIGGS, for more than seven years assistant superintendent, Fox Memorial Hospital, Oneonta, N. Y., has accepted the superintendency of the Stephen B. Van Duzee Hospital, Gouverneur, N. Y.

GEORGE H. STUART, JR., president of the American Oncologic Hospital, Philadelphia, since its organization, died recently at the age of eighty-one. MR. STUART was widely known for his charitable and church activities.

DR. JAMES M. SCRIBNER has resigned as superintendent of the Lowell Corporation Hospital, Lowell, Mass. The Grey Nuns of the Cross recently took over the administration of the hospital and SISTER ST. ALPHONSE RODRIGUEZ, who is superior of the community, automatically became superintendent of the institution.

DR. AMOS CARTER, for the last eleven years superintendent of the Indiana State Sanatorium, Rockville, Ind., has retired.

DR. G. B. M. FREE, assistant medical superintendent, Danville State Hospital, Danville, Pa., has resigned because of ill health. DOCTOR FREE'S resignation ends a career of twenty-five years in the treatment and cure of mental patients. DR. L. R. CHAMBERLAIN, senior assistant physician, succeeds DOCTOR FREE.

IRENE SWAN is the new superintendent of Ortonville Evangelical Hospital, Ortonville, Minn. Prior to her present position she was connected with the Luther Hospital, Watertown, S. D.

DR. MARK L. FLEMING has been placed in entire charge of the department of hospitals, New York City, with the official title of general medical superintendent.

CHARLES C. AYERS has been temporarily named supervisor of the Municipal Hospital, Home and Nursery, Hartford, Conn. Mr. Ayers was formerly business manager of the Boys' Club, New York City, and he was also affiliated with the Westminster School as business manager.

JOHN N. GISH, for a number of years president of the board of directors, General Hospital, East Stroudsburg, Pa., was elected president of the joint board of the East Stroudsburg General Hospital and the Monroe County Hospital, also of East Stroudsburg, when the two institutions merged recently. The new institution will be known as the General Hospital of Monroe County.

DR. H. W. SARGEANT has been placed in charge of the new Wauwatosa General County Hospital, Wauwatosa, Wis.

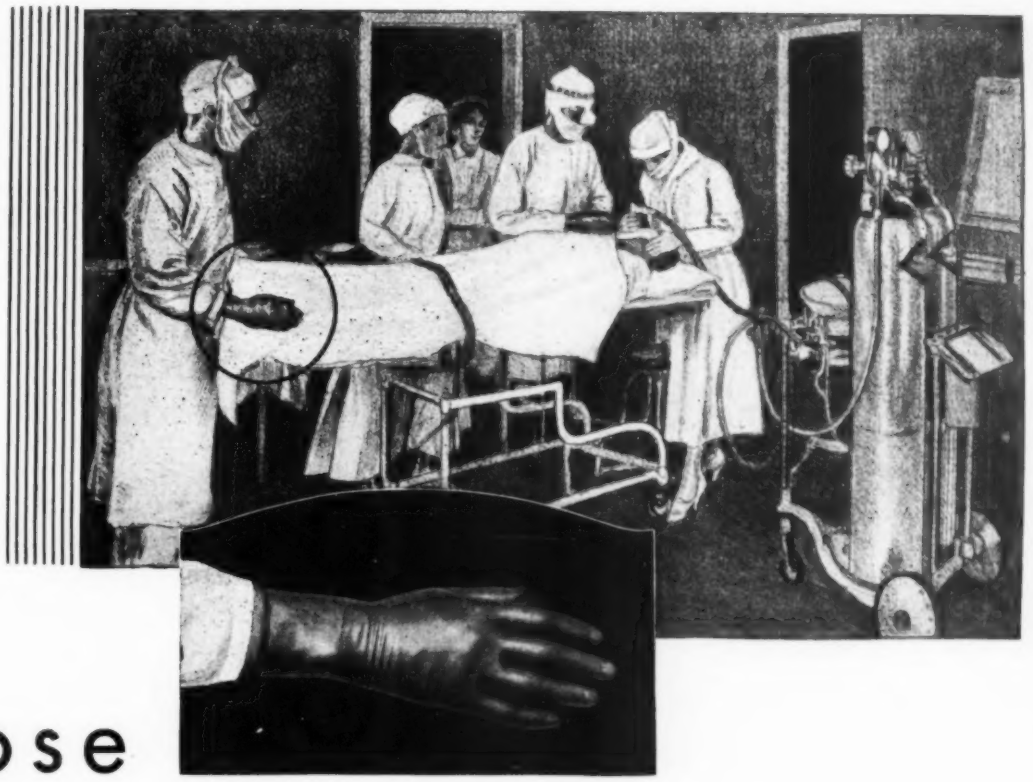
MARY SAUTER, R.N., is the new head of Broken Bow Hospital, Broken Bow, Okla.

DR. FLETCHER H. BROOKS, now on the retired list of the medical corps, U. S. Navy, has been named to succeed COL. JAMES L. BEVANS as director of the John D. Archbold Memorial Hospital, Thomasville, Ga. COLONEL BEVANS is retiring from the hospital field. DOCTOR BROOKS will assume his new duties on April 1.

DR. CLARENCE M. HINCKS, Toronto, Ont., is the new general director of the National Committee for Mental Hygiene, succeeding DR. FRANKWOOD E. WILLIAMS, New York City. DOCTOR WILLIAMS has retired after fourteen years of service with the committee. DOCTOR HINCKS is the founder and director of the Canadian National Committee for Mental Hygiene and vice-president of the International Committee for Mental Hygiene.

DR. CHARLES CHASSAIGNAC for more than eight years superintendent of the Eye, Ear, Nose and Throat Hospital, New Orleans, has resigned.

EMMA DALE BOOTH, formerly superintendent, Emma Booth Memorial Hospital, Covington, Ky., and also for a few years superintendent, Boston Hospital, Roxbury, Mass., has been appointed supervisor of all the women's social homes and hospitals of the Salvation Army in the Southern territory. Headquarters for these institutions are in Atlanta, Ga.



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Director for Medical Services, Julius Rosenwald Fund, Chicago

Applying Business Methods to Medical Service

By J. ROLLIN FRENCH, M.D.
Los Angeles

THE problem of a more economical distribution of scientific medical care and hospital service to the middle class, which represents approximately 70 per cent of the population, is receiving serious consideration by special groups, members of the medical profession, hospitals and the public at large.

It has been truthfully stated that only about 15 per cent of the population of the United States are financially able to secure proper medical attention regardless of cost. Another 15 per cent are represented in the charity group, who are amply cared for, as far as scientific medical and surgical service is concerned, by many well organized charitable hospitals, including city, county and state institutions. The remaining 70 per cent—the middle class—do not wish to accept charity and in many instances the modest incomes of patients of this class will not permit them to pay the costs necessarily attached to the present system of dispensing scientific medical care. As a result many have been attracted by the glowing promises of unscientific cults and commercial quackery.

Little can be accomplished by attempting to legislate against this evil unless a public educational campaign is instituted, demonstrating an improved and practical system for the distribution of medical and hospital service, adaptable to the circumstances of the middle class.

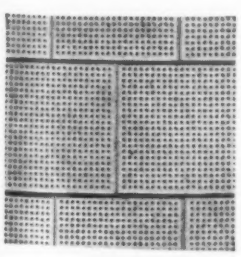
Statistics show that the average person will not systematically budget his monthly earnings so that a certain amount may be set aside to take care of his physical requirements in case of illness. The only method available, therefore, is that of a monthly contribution of a reasonable sum into a benefit association or some form of insurance that will provide for adequate physical care in time of need, in the same way that medical care and surgical care are now successfully provided under compensation.

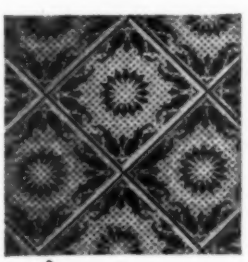
It is believed that the present method of distributing medical services can be changed to reduce costs materially without interfering with efficiency, and still give recognition to the fact that physicians and surgeons are worthy of their hire. To accomplish this, however, a system must be popularized that will increase the standards of scientific service and yet operate so as to reduce overhead.

Before an attempt is made to draw conclusions with reference to a solution of this problem, thought must be given to the antecedents of the present circumstances. The various ramifications of scientific physical service have done much to add to the span of the average life in the past decade, to say nothing of the reduction in human suffering. This worthy effort is entitled to every reasonable consideration, but it is believed that the benefits of this scientific progress could be more universally distributed, with greater credit to the respective professions, if science would more intelligently cooperate with modern standardized business principles.

The one great stumbling block in the practical application of a better system for the distribution

Acousti-Celotex on the ceiling of this funnel-like corridor in Maple Hospital, Pittsburgh, Pa., subdues noise and prevents the relaying of disturbing sounds from room to room.





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of scientific medical, surgical and hospital service is medical tradition. The scientific mind has been so actively engaged in the development of the respective sciences that it has failed to recognize the fact that business technique has developed with practically the same proportion of progress and efficiency. Therefore, for want of a better understanding of modern business principles, the scientific mind is attempting to market modern scientific physical care in an antiquated fashion, instead of applying modern business technique in the marketing of a worthy product.

Professionally trained minds, including doctors and hospital managers, immediately take exception to any suggestion about the "high cost of medical care" by stating that the public and business trained minds do not fully appreciate the problems that medical science encounters. In a measure this is true and, by the same token, the reverse is true—the professionally trained mind does not fully appreciate the financial problems of the general public with reference to physical care.

Under the present system of distributing scientific medical care, many duplications of effort multiply the costs, and deprive a large percentage of the population of the privileges of proper service or force them to accept charity. A properly inaugurated change in the present system will make possible increased service to the public and more equitable care for the average doctor's net income.

A New System Is Needed

A better system will eliminate the opportunity for unreasonable profiteering on the part of a few physicians and surgeons, without interfering with the possibilities of a net income in proportion to the doctor's skill. It will provide a better opportunity for increased net earnings and usefulness of the physician to the public at large. Medical traditions will for the moment act as a smoke screen to prevent the average medically trained mind from conceiving a vision of the wonderful possibilities in a new system of distributing medical care, but the force of present day demand will rapidly remove the screen and the dawning of a new day in medical practice will be evident.

Medical traditions have an advantage and a disadvantage. The advantage is that they tend to standardize higher principles of scientific practice in the art of healing, a policy that under no circumstances should be underrated. The disadvantage is that the former teachings prevent the broader conception of a practical application for a more uniform distribution of the art.

How medical traditions may be changed so that the medical profession and hospitals will give more consideration to business technique in the development of a system of service that will more uniformly answer the requirements of the general public and at the same time protect the respective professions, is the problem to be solved. If the medical profession and the hospitals do not cooperate in solving this problem, commercial interests will assume the initiative and develop a system of service, purely commercial in character, with no respect whatsoever for some of the sacred teachings of former medical traditions, which are worthy of every consideration.

A properly organized pay hospital clinic in which qualified physicians participate will eliminate the overhead of the independent physician, thus guaranteeing to him a net return for his services, in excess of what his independence now normally produces. At the same time such an organization will eliminate duplication of effort, thus guaranteeing better service to the patient at a reduction in cost.

A Successful Experiment

The Golden State Hospital and Clinics of Los Angeles have been experimenting with the foregoing ideas for several years. At first the medical compensation problem was presented for consideration. It was soon discovered that industries with less than 5,000 employees were too small to maintain adequate medical service of their own, for it was found that it required approximately 5,000 employees in an individual industry to warrant the pro rata of overhead expense to develop a complete scientific unit of service. The Golden State Hospital recognized that if this were true, a unit of service of the same degree of efficiency could be maintained in a clinic supported by 100 concerns of fifty employees each, as well as by one industry of 5,000 employees. Therefore, first aid and minor treatment service stations were established in convenient industrial locations to further this end. At the present time the Golden State Hospital and Clinics, in various units of service, represent between 3,000 and 4,000 small industries, thus giving the employees of the smaller industries the same degree of scientific medical and surgical care as those in larger industries, at the same pro rata of expense.

The main hospital and clinic is centrally located and is equipped with modern scientific diagnostic and treatment appliances for all requirements. All complicated cases received at the unit stations are immediately transferred to the base hospital, so that each patient is assured of a full measure of scientific service.

In 1914 California initiated a compensation law,

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which gave recognition to these same principles. This law compelled employers of labor to ensure their employees against disabilities that arose out of and in the course of employment. The compensation insurance companies assuming this liability were compelled to adopt a fee schedule for professional service. This schedule was later revised by the state industrial accident commission. The new schedule was based upon the minimum fee normally expected in private practice from an individual with an income of approximately $1,200 a year. It was soon recognized that scientific service on this basis could be given at a profit if a group clinic, designed to care scientifically for volume, was organized. The preliminary experience led to the establishment of the present Golden State Hospital and Clinics in 1920. After this date and until 1927 the services of the hospital and clinics were limited almost exclusively to the insurance companies fulfilling their obligations to employers under compensation policies, but in 1927 the management, having proved that by reducing overhead and increasing volume, scientific service could be rendered to private patients at the same rate, if the fee were guaranteed in the same way as in compensation cases, noncompensable disabilities were equally well cared for at a fee consistent with the fee schedule covering accident cases.

Developing a Credit System

The only difficulty encountered was in the development of a credit system. This was practically overcome by (1) the employer's guaranteeing payment for services rendered, or (2) by adopting an installment plan of payment for more extensive cases. This installment credit system differs in no way from that of many of the commercial firms of to-day—the requirement of a guarantee signed by two responsible parties before the extension of any great amount of credit.

In the treatment of private practice cases the hospital offered, as widely as possible, flat fees that included a definite period in the hospital. For example, a hernia operation could be done for $176. This sum covered medical and surgical care and hospitalization for twelve days, as well as supplies, laboratory work and special needs. An ordinary appendectomy cost $205 including all services. If the total sum could not be paid at one time, the credit system note was accepted, payable at the rate of $15 a month with 6 per cent interest on deferred payments.

A careful survey of the physical aspect of industry soon proved that the employers, as well as employees, were giving but little consideration to preventive measures relating to health. Either they had never been properly informed as to the merits of such measures, or, if they were alert to the value of physical service they did not know how or where it could be obtained at a price consistent with their financial circumstances. In an attempt to improve the situation, the Golden State Hospital and Clinics developed a system of service to industry which included employment examinations, supplemented by periodic physical examinations. Such examinations were not intended to eliminate prospective employees who were afflicted with certain physical defects, but to place applicants in the type of positions best suited to their physical condition. This service also gave the employee information that he could utilize in protecting his future health and happiness. It assisted the employer in minimizing days of lost time and in reducing employment turnover and compensation costs in proportion to the recognition he was willing to give to the physical fitness of his employees.

Commercial interests as a rule will recognize the merits of any service if it can be shown that it will produce additional profits. In presenting the value of physical service to commercial interests, arguments must be presented in phraseology that can be readily understood by employers instead of that universally used by the professionally trained mind in describing the etiology of definite pathology. It is not difficult to show the average employer that the success of the average industry is dependent to the extent of 65 per cent upon its man power and further, that 11 per cent of correctible inefficiency is due to physical defects in that man power. The average employer can readily see the advantages to industry of making possible for employees a physical service that will reduce this commercial inefficiency to a minimum.

Machines and Men

A further comparison may be shown employers that usually intrigues interest. This is that modern mechanical efficiency has been greatly enhanced by the installation of a mechanical maintenance department replacing the out-of-date repair department. In other words, it has been proved that an expenditure of $38 annually for maintenance and service of the average mechanical machine has increased its productiveness manyfold; yet only an average of ninety cents a year is spent in the servicing, so to speak, of the operator of the machine, which has a potential value to the employer twice that of the machine. If 10 per cent of the mechanical service expense were added for the annual physical servicing of

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Will Ross, Inc., Milwaukee, Wis.
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Surgical Sales, Inc., Shreveport, La.
Southwestern Surgical Supply Co., El Paso, Texas.
American Surgical Sales Co., Ltd., Oakland, Calif.

the operator, the productiveness of the machine would again be increased.

A nationally known employer recently expressed himself as follows: "We are not rendering service to our employees because of paternalism. It has been proved beyond a reasonable doubt that full health service to employees is good business and productive of financial returns to industry, to say nothing of the advantages to the employee and his family."

Practical Health Insurance

Compensation experience in the United States as a rule has proved most satisfactory. This experience should be of great value in the readjustment of a system of service for noncompensable disabilities, which represent five times the days of disability experienced by industrial accidents. Realizing the significance of this situation, the Golden State Hospital and Clinics developed the Golden State Club Benefit Association which is contributed to monthly by its members, thus guaranteeing to them physical service as it becomes necessary. The association cares for nonindustrial disabilities in the same way that compensation service provides medical care in industrial disabilities. The employee requiring physical service receives treatment, which is paid for by the benefit fund on the compensation schedule basis.

This plan has been reasonably successful and therefore may be considered as a basis for a workable plan for the foundation of a universal service to the majority of the 70 per cent known as the middle class.

The out-patient department of the Golden State Hospital Clinic is now caring for approximately 12,000 new cases annually classified as compensable, private and benefit association. All practical departments of service are available, including hospitalization, special examinations, laboratory, x-ray, surgery, eye, ear, nose and throat and obstetrics. Certain specialties, however, such as urology and others less frequently used, are included only through a consulting staff.

Scientific approved service is rigidly adhered to; hence the results are uniformly on a par with institutions where private practice is cared for at greater expense. Systematic uniform records of the out-patient department aid materially in improving service and reducing costs. Modern office equipment, such as machine bookkeeping and multifold record equipment reduces the duplication of work. Specialization of the respective departments adds to the efficiency of treatment, without eliminating the personal element. The policy of standardization is rigidly adhered to.

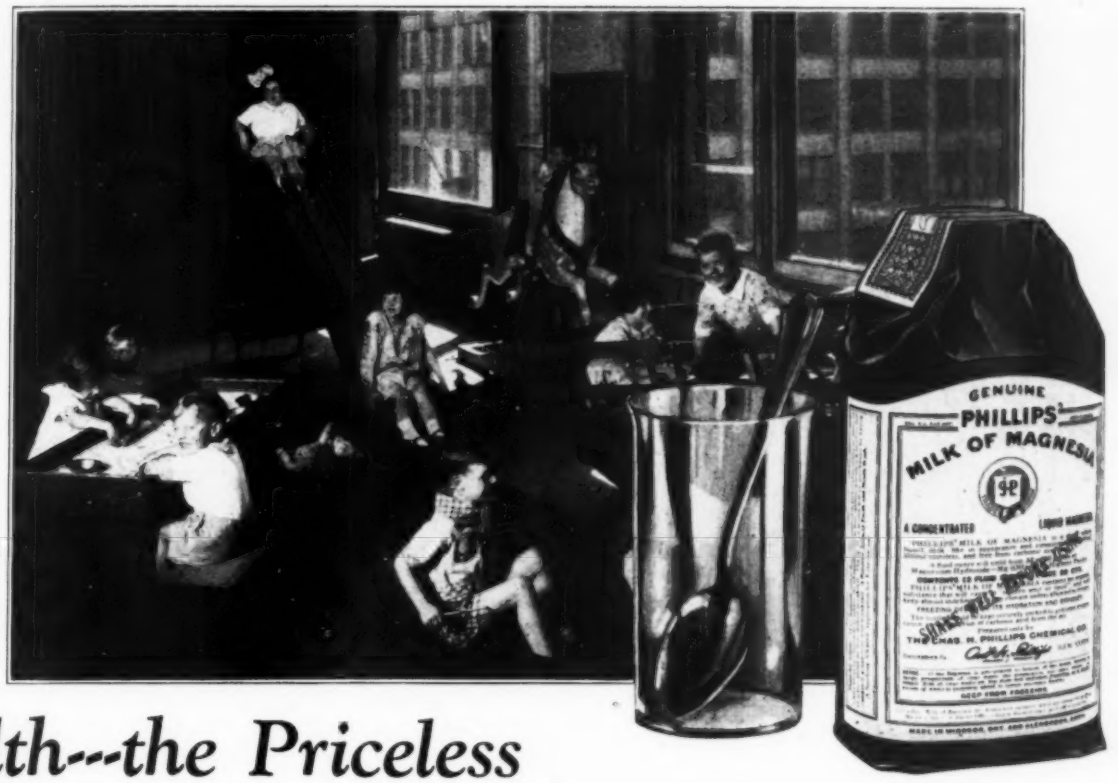
The success of this system demonstrates the fact that proper scientific service can be rendered at a price consistent with the financial circumstances of the average person, provided that volume of practice can be centralized so that business intelligence can assist science in systematizing the application of scientific medical treatment to prevent duplication of effort. It is true that the hospital department of the combined clinics represents an annual loss, but the combined service of the hospital department, including the out-patient department, represents a reasonable profit. The success of this system of service rendered by the Golden State Hospital and Clinics to those who may be said to be in moderate circumstances is added proof of the fact that modern business methods may be injected into the application of the administration of scientific principles of medicine and surgery without eliminating scientific technique or disregarding the personal element of service to the patient.

There are many arguments at the present time tending to prove the fallacy of this system, but they may be successfully met if some of the antiquated traditions of the medical profession can be supplemented with modern business intelligence. Any change that might be instituted in the distribution of medical attention must be based on a service that is supported by premeditated monthly contributions representing some form of insurance, supplemented by a closer relationship between the organized practice of medicine and hospitals. A system of this type will be far-reaching in its usefulness and will add to the service of the public at large at much less average expense, at the same time providing a more equitable financial remuneration to the physician and the hospital.

"The Public's Investment in Hospitals"—A Study

The first of a series of studies on medical economics is that by C. Rufus Rorem, "The Public's Investment in Hospitals," recently released by the University of Chicago Press. It is an authoritative estimate of the amount of capital investment in hospitals and is a significant contribution to hospital accounting, bearing directly on controversies about the cost of medical care.

Other studies in the process of preparation now are Dr. Emmet B. Bay's report on the medical administration of hospitals and Dr. Michael M. Davis' material concerning the ability of patients to pay for medical care.



Health---the Priceless Asset....

RESTORING the sick to health, while originally the only function of the hospital, is more and more being supplemented by the service of keeping well people well, and all over the country hospitals are taking active leadership in health educational work. Particularly among children the ideals of healthful living and right habits are meeting with excellent results.

Quite properly the service of any hospital includes educational work with resident patients, outpatients, and through its community contacts—educational work among both children and adults to the end of preventing those abuses of right living which lead to ill balanced metabolism. This condition too frequently shows itself through a diminished alkalinity of the blood and tissues due to an excess of acid products—acidosis.

Gastric hyperacidity, acidity of the mouth and other of the more obvious manifestations of acidosis are promptly counteracted by "Phillips' Milk of Magnesia" which has a pronounced affinity for acids, the harmless resultant compounds being readily excreted. Further, it has the additional merit of being laxative, a quality of importance here since constipation is so frequently the underlying cause of hyperacidity.

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DIETETICS AND INSTITUTIONAL FOOD SERVICE

Conducted by ANNA E. BOLLER, Central Free Dispensary at Rush Medical College, Chicago

What Is the Dietitian's Status?

By MARY ANNE HARMAN
Chief Dietitian, Butterworth Hospital, Grand Rapids, Mich.

AS TESTED efficient business methods are applied in hospital administration, so does the dietitian take her place as a trained business executive. Her scientific knowledge is tested and tried; her executive ability and business acumen are proved. From a standpoint of both economy and efficiency her services are recognized as essential. What then is her status?

As a trained and experienced person the dietitian is entitled to rank as a necessary executive of the hospital staff, whose responsibility to her superintendent is direct and complete. It is fundamental to the successful functioning of the dietary department to have as its head a competent trained executive, backed by an adequate trained staff. Her duties fall into three major divisions—administrative, educational and scientific.

The primary function of the dietitian is the efficient administration of her department. She must control each step in the selection, preparation and service of food. The wise selection and buying of food require detailed knowledge and constant study. An understanding of market conditions, food production and distribution, selling units and packing of various commodities is necessary for scientific buying. Records and checks of departmental costs and expenditures are essential for the well run department. Daily knowledge of expenditures and a check at all times of per capita costs are ascertained by food control systems for all commercial businesses. Lack of positive facts is a justifiable excuse for failure to approximate a budget. It is estimated that the cost of food is about one-third of the total expenditure of the average hospital. What a great economic blunder to entrust the disbursement of such a huge sum of money to one who is not equipped with the necessary knowledge and experience.

Of prime importance is the planning of meals. Many factors must be kept in mind in menu planning: (1) an adequate, well balanced menu, (2) the money allowance, (3) coordination of meals and apportionment of labor, (4) market conditions, (5) facilities for service and (6) combinations of food with an eye to color and harmony. Creating a satisfactory food service is the dietitian's chief duty. Appetizing, attractive meals are essential in feeding the sick. Commercial food services emphasize the value of eye appeal, but in many hospitals the importance of this is totally disregarded. Realizing the tremendous asset of a good food service, the high class hotel considers its cuisine of major importance. How much more essential it should be for the hospital to realize the value of a good food service, since its food must appeal "to senses jaded by disease and be as nourishing to the spirit as to the body."

The estimation of an accurate budget, the securing and training of a competent personnel and the selection and care of equipment are additional administrative duties that enlist the attention of the dietary department chief.

The second important function of the dietitian is teaching. Educational services rendered by most dietary departments include instruction of the patient in the necessity of proper diet; specialized instruction in diabetic and similar therapeutic cases; class instruction and individual lessons in diet and disease for both hospitalized patients and out-patients. In relation to the student nurse, the

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student dietitian and in many hospitals the interns and medical students, the dietitian has an important educational obligation to fulfill. The importance of preventive medicine demands her attention. Teaching the correct interpretation and application of the principles of normal nutrition in the preservation of health is a function that the modern hospital is promoting.

In the rapid development of the hospital into the highly organized scientific institution that it is today, the science of diet therapy has been contributing an important service. The future promises greater developments, which will necessitate diligent study and investigation.

To organize an efficient and economical department, the dietitian must be versed in administrative, educational and scientific matters. Sufficient personnel to permit proper supervision and execution is necessary. Many competent dietitians are hopelessly handicapped by lack of an adequate staff. Capable supervision of her personnel, investigation of the advancements in both business and science and promotion of harmony and understanding within and without her department require much thought and ability. To hold the dietitian responsible for the successful functioning of such duties without granting her proper authority and necessary assistance is unfair. The dietary department that is capably directed on principles of good business and good medicine is bound to be a tremendous asset to any hospital.

Training Hospital Dietitians for the Future

By HELEN MALLORY
Dietitian, Mt. Sinai Hospital, Cleveland

As the ranks of the dietetic profession increase, we may well think of the responsibility of those who are training hospital dietitians for the future.

The standardization of hospital courses by the American Dietetic Association has materially improved the development of hospital dietitians. Coincident with this, colleges and universities have developed a clearer understanding of the technical knowledge necessary.

Recent studies show that many well planned courses are being offered and that some exceptionally good students are enrolling. It is important to keep two points in mind if continued progress is to be made in the training of students: the need of a careful selection of the individuals entering the courses; the recommendation of the withdrawal of unqualified students. The first depends largely upon information received from the college or university from which the applicant graduates. The second depends upon many factors, among them adaptability, health and ability to make use of the knowledge already acquired.

Since the institutions that offer training are particularly concerned with the educational problems of the dietary department, the department will need to be so organized that the withdrawal of one or more students at a time will in no way hinder its usual functioning. The number of trained dietitians constantly employed must then be sufficient to carry on the major activities of the department, and also to give careful supervision to the students in training. If students are allowed to replace members of the personnel of the department the withdrawal of one or more students is disturbing to the organization. The acceptance of students may in some instances require an increase in the dietary staff, not, as is frequently supposed, a reduction in the number of its personnel.

Since undergraduate instruction must for the most part be given in large groups, postgraduate work should surely permit close personal contacts with those who have accepted the responsibility of student training. It is these contacts that often are most important factors in the hospital course, and it is through these that a more conscientious and accurate evaluation of a student's qualifications is possible. When the number of students accepted is in proportion to the opportunities for training that an institution can offer and when only qualified students are allowed to complete the course, each certificate given will then mean a sincere recommendation of an individual for the field of hospital dietetics.

Marketing Suggestions for the Dietitian

Perishable food supplies for the hospital kitchen should be selected at least once a week, and preferably twice, according to the *Trained Nurse and Hospital Review*.

Since quality is an important factor in such supplies, the dietitian should choose them personally. She should secure quotations from two or three dealers before she starts to market. Time is saved by looking over the lowest priced product first. Quotations that are noticeably under the market price should be investigated thoroughly. It is always false economy, the article says, to pay a low price on the current market for products of inferior quality, since price alone should never be the determining factor.

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No. 2½ tall	1 lb. 14 oz. 8 slices	1 lb. 14 oz.	1 lb. 14 oz.
No. 2 tall	1 lb. 4 oz. 8 slices	1 lb. 4 oz.	1 lb. 4 oz.
No. 1 tall	14 oz. 8 slices	14 oz.	14 oz.
No. 1 flat	9 oz. 4 slices	9 oz.	9 oz.
8 oz.		8 oz.	8 oz.

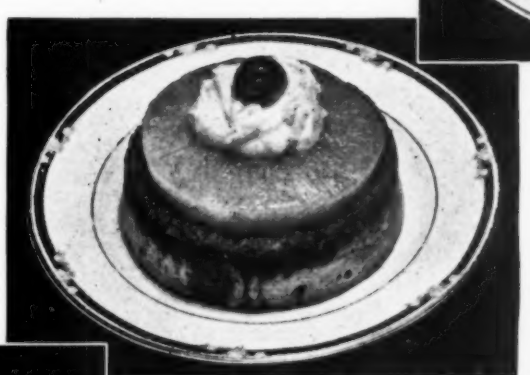
Pineapple and Carrot Salad
(For Anaemia Diets)

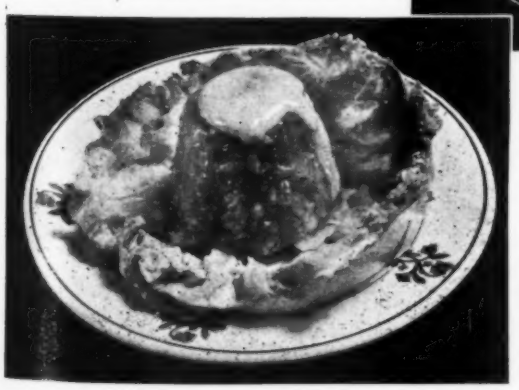
Arrange slices of Libby's Pineapple on crisp lettuce. Cover with grated raw carrot. Serve with French dressing

New Pineapple Dishes for Hospital Diets

Winter Salad
(For Anti-Constipation Diets)

Use a lemon gelatin foundation. Add equal parts coarsely chopped raw cranberries and Libby's Crushed Pineapple. Add finely chopped orange, using both rind and pulp. Mix well. Pour in moulds. Chill. Serve on crisp lettuce with whipped cream dressing





Pineapple Upside-Down Cake

Melt butter, add brown sugar. Simmer. Put in individual ramekin dishes. Add a slice of Libby's Pineapple. Fill dish two-thirds full of sponge cake batter and bake slowly. Invert on plate, serve with whipped cream and garnish with Maraschino cherries

Libby's Hawaiian Pineapple Sliced and Crushed in the No. 2½ tall size

HOSPITAL EQUIPMENT AND OPERATION

With Special Reference to Laundry, Kitchen and Housekeeping Problems

Conducted by C. W. MUNGER, M.D., Director, Grasslands Hospital, Valhalla, N. Y.

How Oil Compares With Other Fuels for Hospital Use

A Paper From the American Hospital Association Meeting

By HENRY HEDDEN, M.D.
Superintendent, Methodist Hospital, Memphis, Tenn.

THE subject of oil as compared to other fuels for hospitals has been the center of a great deal of discussion and argument for the last twelve or fifteen years. It is not my purpose to speak as an authority on this subject, but rather to present a few general thoughts touching on fuels for hospital use.

Recently I was amused to read in an article published several years ago in a hospital journal what appeared to be a conclusive opinion on the part of one hospital board as to why oil for fuel should not be considered seriously. A list of eight or ten supposedly conclusive reasons was given, among them being the probable failure of the oil supply at an early date and the fact that the stress had always been placed on coal burning equipment and that therefore it was better to burn coal than oil. In the light of present day developments, this statement may be viewed with toleration.

I have heard on fairly good authority that the visible supply of oil is almost inestimable and will probably be sufficient for many years, even for our rapidly growing consumption. Many new fields have been tapped within the last ten years in places hitherto unsuspected of being oil producing. The distribution of rock strata bearing petroleum oils seems almost worldwide. To cite only a few of the well known fields, there are, of course, the old Pennsylvania fields, the more recently discovered fields in Southern California, the amazingly productive fields of Arkansas, Texas and Oklahoma and the great fields of Mexico and South America, as well as the oil deposits in Persia, Arabia and Java. In addition to these, for the year 1927 countries producing more than one million barrels of petroleum were Egypt, Japan and Formosa, Sarawak, Poland, Trinidad, India, Argentina, Peru, Columbia, Roumania and Venezuela.

The ultimate destination of all or nearly all natural crude oils is the oil refinery. The products of petroleum distillation are many and varied and it is unnecessary for me to stress even the importance of these products in modern industry and modern living. One large company in its report for 1927 shows that its production of naphtha and gasoline was 56 per cent of the amount of crude oil going to the refinery. The remainder consists of kerosene, lubricating oils, gas oils, fuel oils, asphalt, paraffin wax and roofing. Under the head of fuel oils, their production amounted to over 30 per cent of the crudes run. In other words, this one refining company produced nearly 18,000,000 barrels of fuel oils. How much of the latter they were able to sell the report does not state. In the case of this one refinery, the fuel oil production was more than 60 per cent as large as their production of gasoline.

Doubtless the experience of many other large refineries is similar to that of this corporation. If that is so, then 1,254,145,000 barrels of crude oil that were produced in the world in 1927 would

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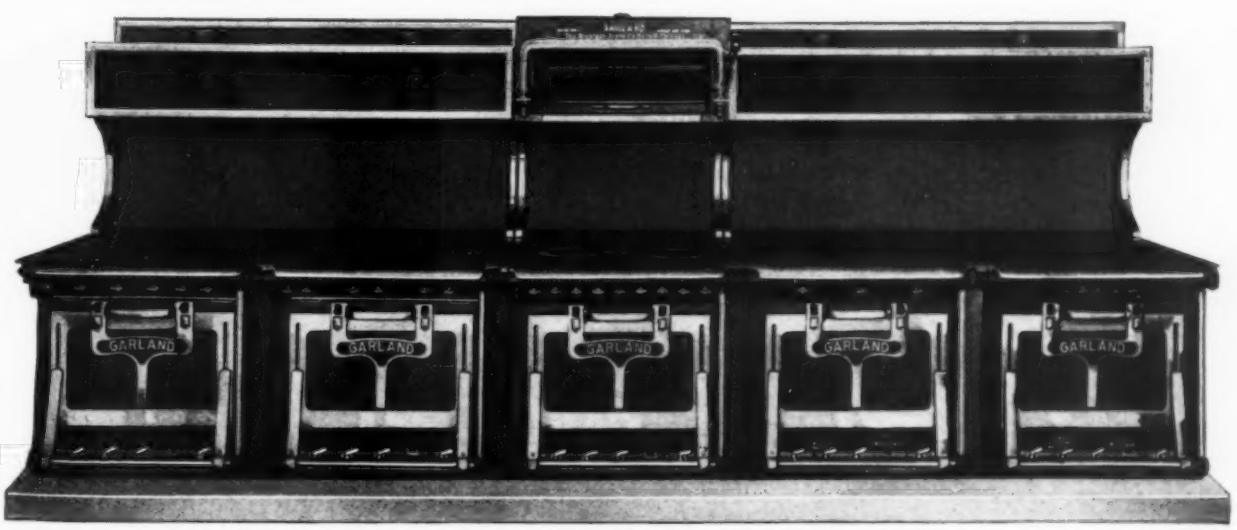

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To make *sure* of the full, stimulating healthfulness and the important vitamin elements desired, orange juice should be freshly extracted from sound fruit. In hospitals, particularly, it is unwise to take chances with any substitute or "bulk" product. Health authorities agree, too, that the soft roughage contained in the pulp of oranges and lemons is "exceedingly desirable in the daily diet." Do not strain this additional health out of it—except, of course, for seeds. (Sunkist navels are seedless.)

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give more than 360,000,000 barrels of fuel oil. This should effectiveiy answer for some time to come many arguments as to the probable shortage of oil fuel. Many grades of fuel oil are offered for various types of use, but for the type of heating plant used in most hospitals oil fuel experts recommend oil of a consistency of from 18 to 22 degrees Baumé. This oil is of a thick consistency and has a specific gravity equal to that of water. Recent quotations on fuel oil of this type are 50 cents a barrel at the refinery.

The economy of oil fuel depends of course on its cost laid down at the plant, compared with the cost of coal under the same conditions. Many hospitals in the country are so located that their freight and haulage cost need not exceed $1 a barrel. The heat value of oil of this grade is 140,000 to 142,000 B. t. u. per gallon. On this basis, four barrels of oil costing $6 laid down would be equivalent to one ton of high grade anthracite coal, or three barrels would be equivalent to one ton of low grade coal.

The advantages of oil fuel may be briefly stated as follows: cleanliness; freedom from dust; entire elimination of ash; the reduction of boiler room labor; the absence of smoke; more even and efficient firing conditions. It is possible to operate a high pressure boiler with fuel oil at from 175 to 200 per cent of its rated capacity continuously and evenly without damage over a long period of time. Another great advantage is the fact that with satisfactory modern methods of firing, between 75 and 80 per cent of the thermal content of the oil can be utilized, whereas, under the best conditions it is difficult to obtain more than 50 per cent fuel efficiency from coal.

Storage Facilities Must Be Adequate

Preparation for the installation of oil fuel will, of course, include adequate storage facilities. It is advisable to have a tank that will hold probably one and a fourth carloads at least. The average tank car used by the railroads holds 8,000 gallons, so that to utilize oil in carload shipments and not exhaust the supply of oil on hand before refilling with another carload, the hospital should have a minimum of 10,000 gallons storage. Provision should be made to heat these storage tanks probably with waste or exhaust steam. In severe winter climates, it may be necessary to add live boiler steam to the tank heater to maintain a sufficiently low viscosity to facilitate the flow.

It is necessary also to maintain a system of pumps which will deliver the oil to the burner. A strainer to remove oil sediment before the oil reaches the atomizing jets is absolutely essential. It is advisable to install between the strainer and the burner a meter that will give accurate information as to the rate of flow and rate of consump-

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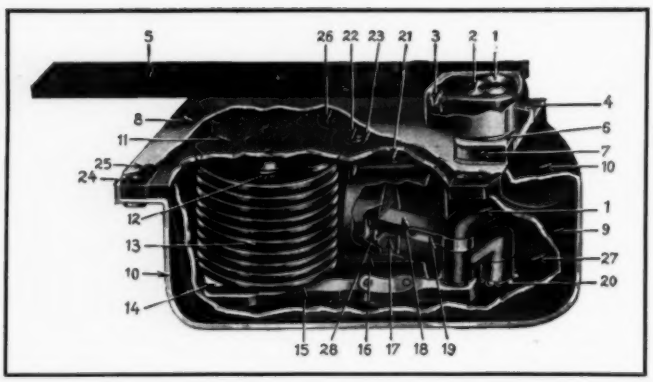

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tion. In this way oil can be used intelligently with exact information as to daily and hourly consumption, peak load and similar details.

Three distinct methods of atomizing the oil in common use are: air atomizers, mechanical atomizers and steam atomizers. Theoretically the mechanical atomizer is probably the best, but it is rather complicated and is to be avoided except in boiler plants large enough to maintain a high grade force of mechanics. For general use in small plants it is suggested that steam atomization be used. It is by all means the simplest and easiest to operate and least likely to get out of order. The only drawback to the use of this method of atomization is the fact that it requires from 3 to 5 per cent of the total amount of steam generated in the boiler to operate the atomizer.

Advantages of Natural Gas

It is not practical in this paper to quote figures as to the probable cost of the installation of oil burning equipment in existing plants or in new plants. The foregoing general statements are worthy of consideration by all hospital executives and boards of trustees who recognize that they probably have a fuel and boiler room problem on their hands.

A discussion of this subject would be incomplete without mentioning a type of fuel which, in certain sections of the country at least, has rapidly come to the fore. Heretofore unthought of rich fields of natural gas are being tapped throughout the South and Southwest. Engineering studies have resulted in greatly improved methods of transferring gas from the producing fields to cities so far remote as to be considered inaccessible a few years ago. Natural gas from the Louisiana fields is now being delivered by pipe line to Birmingham, Ala., and Atlanta, Ga. A pipe line is already completed to carry gas from the same field to St. Louis for industrial users, a distance of nearly 500 miles, and another line is to be run from the Panhandle to Chicago, a distance of 1,000 miles. This makes it possible to furnish natural gas in large quantities for industrial use at heretofore unheard of rates. The rate for industrial users of gas in the city of Memphis, Tenn., is now about seventeen cents a thousand feet. Under average practical conditions 20,000 cubic feet of gas is equivalent to one ton of coal at an equivalent cost of about $3.50 a ton.

In my opinion any hospital within reach of a good supply of natural gas might well consider this the ideal fuel. Its advantage over oil is that it requires no storage facilities on the part of the consumer, it does not have to be paid for before it is used and it requires no expensive equipment to deliver it to the burners. The burners themselves are simple and do not even require any

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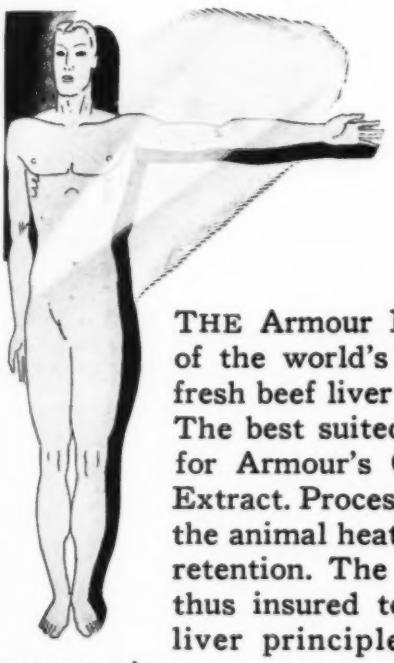

THE Armour Laboratory has one of the world's largest supplies of fresh beef liver to draw upon daily. The best suited of this is selected for Armour's Concentrated Liver Extract. Processing is started while the animal heat is still in a state of retention. The finished product is thus insured to contain the fresh liver principles active in blood regeneration.

Armour's Concentrated Liver Extract is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Each 16-ounce bottle contains the soluble extractives of eight pounds of fresh beef liver.

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Besides producing a complete line of organotherapeutic products, the Armour Laboratory manufactures fine surgical ligatures of selected sheep gut. The facilities of the Armour organization make immediate processing possible. Armour's ligatures retain their uniform elasticity and strength, and are evenly absorbed. Samples will gladly be sent you.

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Armour's Concentrated Liver Extract is remarkably beneficial in the treatment of pernicious anemia. A tablespoonful is the equivalent to four ounces of fresh liver.

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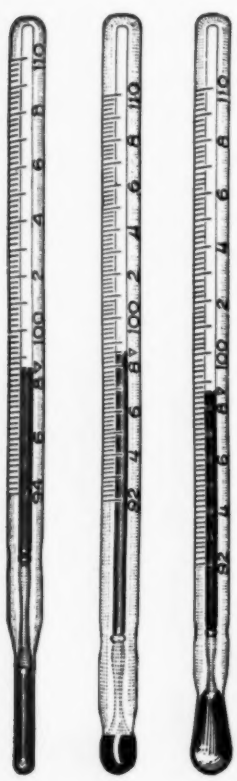

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Faichney's process hardens and toughens the glass and makes it so strong that breakage is reduced to the minimum, thereby saving the hospital a large part of the yearly expenditure for replacement.

Accuracy assured. Pass all Gov't requirements. State Seals furnished in Mass.—Conn.—Mich.

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mechanical means of sustaining air pressures. The hospital with which I am connected converted its fuel burning equipment to gas in January, 1929, and our saving on fuel cost over coal the first twelve months was three times as great as the entire expense of making the conversion.

In conclusion, let me emphasize the following points about oil fuel:

1. The supply is dependable.
2. As a fuel its main advantage is cleanliness, which includes freedom from coal dust, ashes and smoke.
3. It is economical as applied to boiler room labor pay roll and to the removal of ashes. Its economy does not end here, however, but its use should result in a lower expense for fuel in favorably located areas.
4. It is efficient. It should be possible to maintain a boiler efficiency at least 50 per cent greater than is possible with hand fired coal burners, and at least 25 per cent greater than with stoker fired coal boilers.

Tested Appliances for Oxygen Administration

Several new and tested appliances for oxygen administration are now available for hospital and medical use. These include an automatic inhalator, oxygen tents and metal oxygen chambers, as well as a special valve that is recommended for administering oxygen either with the funnel or nasal catheter or for any other service that requires a uniform, quiet flow of gas.

The inhalator, duplex in construction, and entirely automatic in its operation, supplies exactly the correct amount of oxygen to either one or two patients more accurately and much better than it can be regulated by hand. The inhalator is made as a hospital unit and consists of a standard inhalator with a sturdy connection to a large cylinder, all mounted securely on a hand truck. This unit provides an available supply of 250 cubic feet of gas. The small cylinders may be used for greater percentages, such as 10 per cent carbon dioxide or even more for emergency use, while the large cylinder is available for regular service.

The oxygen tent is a compact apparatus, designed for administering oxygen or oxygen carbon dioxide practically and efficiently at the bedside in the hospital or home. The apparatus is portable and has accommodations for a forty-eight hour supply of oxygen. The absorbers maintain the air in the tent free from carbon dioxide and from all odors. The oxygen supply is controlled by the special flow control valve. Circulation is maintained by a quiet powerful blower. The tent

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is a pure olive oil liquid soap—made especially for the care of infants. Nothing but the purest ingredients carefully compounded and aged are ever used in this superlative product.

The baby Lohador Tray soap dispenser—light in weight—easily carried—yet balanced so that it will not tip over—heavily nickeled working parts made of non-corrosive metal.

For the health and comfort of the baby and the nurse's peace of mind—there is no equal for Midland Babeoleum, the Perfect Baby Soap.

MIDLAND CHEMICAL LABORATORIES, Inc.
Dubuque, Iowa, U. S. A.

Photograph, courtesy the Wisconsin Anti-Tuberculosis Ass'n

is a roomy canopy, thirty inches square, supported over the bed by an arm from the apparatus and quickly adjustable to any position.

The oxygen chamber, gastight-insulated, metal and fully equipped, is designed to provide the pneumonia patient with a comfortable atmosphere containing a high percentage of oxygen and a controlled temperature and humidity with a continuous removal of carbon dioxide and all odors. The chamber is built in any size to conform to the dimensions of the hospital rooms. The walls are constructed in sections of various sizes and can be quietly installed. The chamber combines the necessary equipment for air purifying, air drying, or humidifying, cooling, heating, decarbonizing and oxygenating. The equipment also includes analysis apparatus, temperature control and temperature recording equipment and thermostats, for continuous automatic regulation. The entire chamber is insulated so that the cooling is done with a minimum amount of refrigeration. The apparatus operates without noise and the room is soundproof.

Every effort has been made to have the interior of the oxygen chamber show nothing unusual that would indicate anything out of the ordinary to the patient. The interior is similar to any other hospital room.

Special "Talkie" Apparatus Designed for Institutional Use

A 16 m/m talking motion picture projector, the first especially designed and constructed 16 m/m sound projector to enter the nontheatrical field, has just been announced.

For use with this new apparatus a good selection of short talkie subjects is available for rental and purchase, and a number of studios are specializing on short entertainment, novelty and educational talkies that are intended for home, school, church and institutional use. The industrial user will have his films and records made to order.

The apparatus is not of the usual "hook-up" type which employs an auxiliary, shaft connected turn table in connection with a regular silent projector, but assembles into a one unit, sound-on-disc synchronizer in which the turn table becomes an intimate part of the projector mechanism.

The outstanding feature of the new talking motion picture apparatus is the vertical instead of the usual horizontal disposition of the record, which achieves a new standard in compactness and light weight. The record thus revolves in a plane parallel to the side of the projector or at right angles to the screen. The direct connection

There can be no finer tribute to the ideals and idealism of those engaged in the Profession of Nursing than the history of Trained Nursing itself. In 1859 — nothing but an idea. Today — a profession, world-wide, venerated by mankind, symbolized by the figure of an Angel of Mercy.

It is a privilege to be accepted as a helper by the one profession which, in a suspicious world, has been able to establish universal trust—and this in less than seventy-five years, with no propaganda save service alone.

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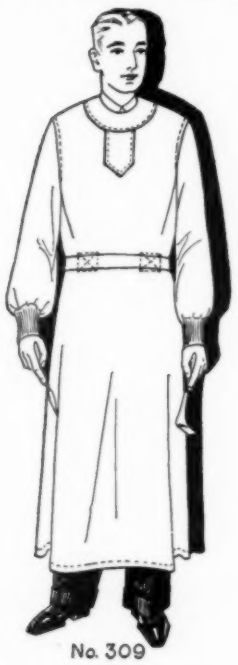
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"Neitzel Quality and Service are responsible for a splendid increase in our business during 1930. We are grateful to our friends in the hospital field who appreciate this Service."

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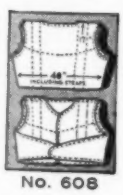
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In the hospital are many uses for a dependable refrigeration system. Air cooling, food preservation, chilling blocks, water cooling, mortuary — there are a hundred places where dependable temperature control is absolutely needed.

The Vilter System installed in Muirdale (Wisconsin) Sanitarium is an excellent illustration of Vilter's long and successful experience in this highly specialized field. Day after day and year after year this system functions perfectly. Many temperatures are maintained: 45° in food preservation chambers, a constant 70° room temperature regardless of outside weather, 42° chilled water, 30° in the morgue, etc., etc.

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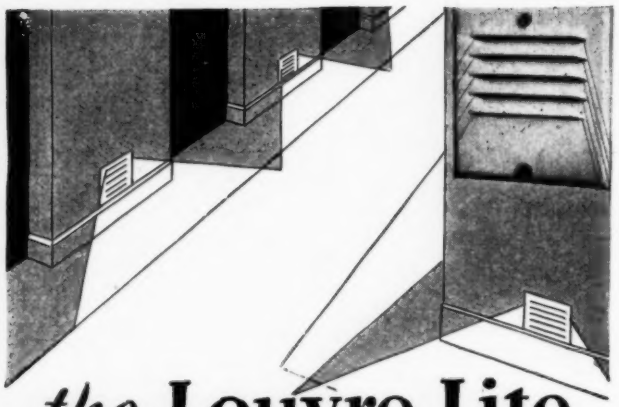

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Economical to install and operate.

Built for hospital service, but splendid for halls anywhere.

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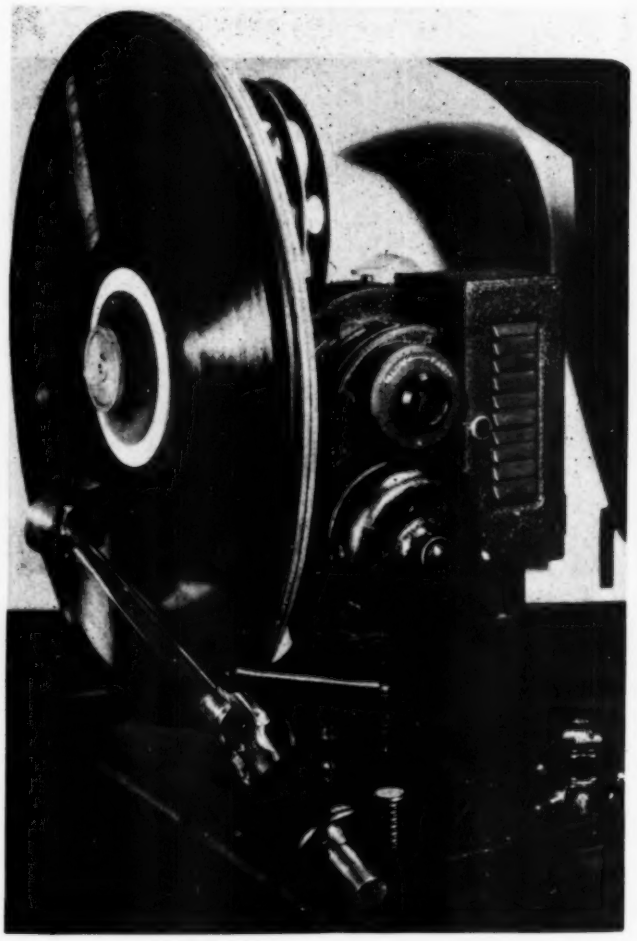
thereby afforded, minus flexible shafts and the like, gives more satisfactory results than have as yet been obtained with separate, shaft connected outfits. Preliminary demonstrations before motion picture and sound experts have shown perfect clarity and constancy of tone, the manufacturers emphasize. Provision has been made in the projector for constantly maintaining an even speed, for adapting the speed to the requirements of both long-time and short-time records, for eliminating vibration and for preventing the transmission of extraneous sounds.

The normal electrical pickup and arm are used, being counterbalanced in a special way so that



the needle comes in contact with the record at just the correct pressure for best reproduction. It is an interesting fact that the vertical disposition of the record and the scientific counterbalancing of the tone arm induce a normal pressure which keeps the needle in a central position in the groove, with the result that it greatly increases the life of records.

This new talkie apparatus consists of only two units—the specially equipped projector and an amplifier-speaker. Two models of amplifier-speakers are available. Both are specially designed units. Amplifiers and speakers are compactly assembled in carrying cases.

Soothing the Savage Breast OF THE Fretful Convalescent

"THIS FOOD IS TASTELESS"... but he eats like a horse! "My bed's lumpy"... but he sleeps like a top! "There's so much noise... I can't get a nurse when I want her... I can't stand this and that..."

Look out! That patient is convalescent!

He is even sensitive to the feel of the sheets and pillow cases. So if there is a difference, let's get the softest, smoothest sheets we can find.

Pequot sheets have a distinctive smooth, soft feel. Your fingers sense it instantly. Cool, firm, luxurious—just to touch it suggests rest and relaxation.

And, fortunately, you find this quality in a sheet famed far and wide because it wears longest.

The definite economy of Pequot's longer wear is as kind to hospital budgets as the texture is to convalescents. Pequot Mills: Salem, Mass. Selling Agents: Parker, Wilder & Co., New York, Boston, Chicago, San Francisco.

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FIRE ESCAPE

Slide the patients on their bed mattresses to the exit leading into the tube, start them down and they come to a gentle stop at the bottom. A quick, safe, gentle slide to safety, protected all the way from smoke, flames, water, gases and, worse still, PANIC.

The pressure of a child's foot on the treadle of the exit leading into the tube, swings and holds the doors wide open giving unobstructed entry into the spacious mouth of the tubular slide at floor level. Able patients, nurses, internes and other attendants swing on the handy bars at top and sides into the tube. Through the Butler Tubular Fire Escape hospitals can be emptied five times faster than by any other means. Ice, snow and sleet cannot hazard rescue work.

Send for complete details and information about our free survey service. The possibility of fire is always present in every type of building. Better face the possibility than the actuality.

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Simplifying the Food and Dish Conveyor Problem

A device that simplifies the food and dish conveyor problem is now on the market and offers a practical means of raising and lowering food and dishes in cafeterias, hospitals and hotels needing this service.

This recently perfected conveyor consists of shelves attached to endless chains. Trays of food or soiled dishes are carried either up or down to the discharge station. When trays are taken downward they are automatically discharged onto a gravity conveyor. For up or down service,

carrying hot meals or trays to various floors or clean dishes and supplies to the serving pantries, the conveyor is designed to operate at any desired speed, to stop at any predetermined floor and, in a sense, to act as a continuously moving dumbwaiter always ready for service.

The conveyor simplifies food service in hospitals, which has always been a major problem. Specially prepared by a dietitian, the steaming food must reach the patient before it cools. Heretofore, it has been necessary to have separate serving pantries on each floor or to send the food up to each floor by means of heated wagons and huge elevators. This is made unnecessary by the use of this special conveyor. The speed and continuous orderly movement of the conveyor make it possible to bring prepared trays directly from the kitchen to the floors where nurses take them to the patients. In the same way the trays of soiled dishes are returned to the washing machines in a smooth, steady stream, without the use of elevators and their attendant manual service.